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COMPUTER ASSISTED TOMOGRAPHY

1. MULTIPLE MENINGIOMAS. CLINICAL AND COMPUTED TOMOGRAPHIC OBSERVATIONS.

Nahser HC, Grote W, Lohr E, Gerhard L
Rontgendiagnostisches Zentralinstitut, Universitat Essen, Hufelandstrasse 55, D-4300 Essen 1, W. Germany
Neuroradiology; 21(5):259-263 1981

The same histological types of tumor are found in multiple as in solitary meningiomas. Multiple meningiomas cannot be considered in every case to be a forme fruste of von Recklinghausen's disease. The incidence of multiple meningiomas in this paper is higher than had been reported before the introduction of computed tomography (CT) into clinical practice. The number of tumor nodes is determined more accurately by CT than by angiography because tumors are detected in patients without neurological deficit. CT has limitations in the verification of small meningioma nodules near the base of the

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skull and in the differentiation of multiple meningiomas from meningeal meningiomatosis or primary meningeal sarcomatosis. (Author abstract) (29 Refs)

2. METRIZAMIDE CISTERNOGRAPHY WITH HYPOCYCLOID AND COMPUTED TOMOGRAPHY IN SELLAR AND SUPRASELLAR LESIONS.

Kuuliala I, Katevuo K, Ketonen L
Likiokatu 25B21 13100, Hameenlinna 10, Finland
Clin Radiol; 32(4):403-407 1981

Metrizamide cisternography with both hypocycloid and computed tomography was performed on 23 patients with a sellar or a suprasellar lesion. The degree of an extrasellar tumor extension or the presence of an empty sella was detected precisely. The procedure was easy to perform and the side-effects were mild to moderate in most patients. When used carefully this diagnostic method provides valuable information when choosing the appropriate treatment for patients with sellar or parasellar lesions. (Author abstract) (24 Refs)

3. PINEAL REGION TUMORS: COMPUTED TOMOGRAPHIC-PATHOLOGIC SPECTRUM.

Futrell NN, Osborn AG, Cheson BD
(c/o Osborn) Dept. Radiology, Univ. Utah Coll. Medicine, 50 N. Medical Drive, Salt Lake City, UT, 84132
AJNR; 2(5):415-420 1981

The heterogeneity in both histopathologic and computed tomographic (CT) appearance was demonstrated in a series of 17 pineal gland tumors, 9 of which were proven by biopsy or autopsy. Included were 4 females (av age 27 yr) and 13 males (av age 15 yr). There were two germinomas, two teratocarcinomas and one each of pineal hamartoma, benign teratoma, astrocytoma, and neurilemmoma among the biopsy-proven cases. The other cases included one 'malignant pineal tumor', one pineal lipoma, five presumed germinomas, and one undiagnosed case. A presumptive histologic diagnosis on the basis of CT alone was not possible and benign and malignant tumors could not be differentiated. An exhaustive search for a suprasellar mass is imperative in all pineal region tumors. Other lesions that should be included in the differential diagnosis of pineal tumors include exophytic brainstem glioma, neurilemmoma, incisural meningioma, intraventricular craniopharyngioma, and metastasis, since these all appear as enhancing masses in or adjacent to the posterior third ventricle or quadrigeminal plate. Since biopsy is now feasible for pineal tumors, it is recommended for treatment planning. (21 Refs)

4. DETECTION OF BONE-MARROW METASTASES USING QUANTITATIVE COMPUTED TOMOGRAPHY.

Helms CA, Cann CE, Brunelle FO, Gilula LA, Chafetz N, Genant HK
Dept. Radiology, Univ. California Medical Sch., San Francisco, CA, 94143
Radiology; 140(3):745-750 1981

A method is described for using quantitative computed tomography (CT) to detect subtle skeletal metastases not readily identified or precisely located by conventional methods. Four patients with intramedullary metastases are presented along with data from 13 control subjects. The results indicate that CT may demonstrate intramedullary changes that occur in skeletal metastases and that cannot be detected by other techniques. A difference in medullary CT number greater than 20 HU between limbs is abnormal. This asymmetry, however, is not specific for metastatic disease, and clinical judgment must be exercised in interpreting this finding. (Author abstract) (13 Refs)

5. CENTRAL NERVOUS SYSTEM LEUKEMIA AND LYMPHOMA: COMPUTED TOMOGRAPHIC MANIFESTATIONS.

Pagani JJ, Libshitz HI, Wallace S, Hayman LA
Dept. Diagnostic Radiology, Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., 6723 Bertner, Houston, TX, 77030
AJNR; 2(5):397-403 1981

Experience with the intracranial computed tomographic (CT) manifestations of leukemic and lymphomatous masses in 405 patients (245 with leukemia, 148 systemic non-Hodgkin's lymphoma, 12 systemic Hodgkin's lymphoma) is reviewed. After contrast enhancement, 31 patients had intracerebral lesions; the CT abnormalities in these patients were correlated with the underlying malignancy, cerebrospinal fluid cytology, and treatment. All CT studies were performed with an EMI 1010 scanner either immediately after 40 g iv iodine or 1 hr after high dose (80 g iodine) contrast infusion. Abnormalities in 24/245 patients with leukemia included leukemic masses (8), hemorrhage (9), abscesse (2) , and 5 other abnormalities including one each acoustic neuroma, astrocytoma, and methotrexate leukoencephalopathy. The only CT abnormality in 160 lymphoma patients was a tumor mass in 7. CT was normal in 374 patients including 148 with meningeal disease diagnosed by cerebrospinal fluid cytologic examination. Malignant masses before treatment appeared isodense or of greater density with varying amounts of edema. Worsening was indicated by increase in the size or number of masses. After radiation therapy and chemotherapy, a central low density region with an enhancing rim developed. The differential diagnosis of the various abnormalities is discussed. (24 Refs)

6. CT OF THE ADVERSE EFFECTS OF THERAPEUTIC RADIATION OF THE CENTRAL NERVOUS SYSTEM.

Kingsley DP, Kendall BE
Dept. Radiology, London Hosp., Whitechapal, London E1 1BB, England
AJNR; 2(5):453-460 1981

The computed tomographic features of radiation damage to the CNS as a result of radiation therapy were investigated. One child with acute lymphatic leukemia developed somnolence syndrome that was temporary. Permanent complications were more frequent, and included eight patients with histologically proven radionecrosis and one who developed a meningioma in the radiotherapy field, 13 w ho developed atrophy, three children who developed calcification of the basal ganglia, one necrotizing leukoencephalopathy, three with mineralizing microangiopathy, infarction due to radiation-induced vascular occlusion, abscess formation, and an acute agonal hemorrhage into areas of histologically proven radionecrosis. The most frequent early CT change of radiation damage is low attenuation in the white matter, which might be misinterpreted as due to tumor progression. The importance of appreciating the CT changes in these conditions and recognizing their significance is emphasized. (39 Refs)

7. COMPUTED TOMOGRAPHY IN MESOTHELIOMA.

Kreel L
Queen Mary's Hosp. for the East End, West Ham Lane, Stratford, London E15 4SD, England
Semin Oncol; 8(3):302-312 1981

Computed tomography (CT) may be useful to accurately monitor the progression of mesothelioma and effects of treatment, and to help distinguish them from the coexisting changes

of asbestosis by clearly demonstrating the radiologic signs. The basic components of the CT system are reviewed and the CT appearances of the normal thorax described. While not entirely pathognomonic, the findings of pleural effusion, rib destruction, pleural plaques or calcifications, intrapulmonary nodules and thickening of the pleura, pleural fissures, and paramediastinal structures especially at the base and posteriorly are suggestive of mesothelioma and should lead to specific biopsies in the appropriate areas. The delineation of tumor nodules within effusions allows mesothelioma to be analyzed sequentially and evaluated for treatment results. The CT appearances of asbestosis are described, as are those of mesothelioma, including pleural effusion, thickening of the fissures, pleural thickening, paramediastinal thickening, contracted hemithorax, pulmonary nodules, calcifications, rib destruction, and pleural plaques in the opposite hemithorax. (9 Refs)

8. ULTRASOUND AND COMPUTED TOMOGRAPHIC DEMONSTRATION OF PORTAL VEIN THROMBOSIS IN HEPATOCELLULAR CARCINOMA.

Pauls CH
Serivce de Radiologie, Clinique St. Pierre, Avenue Reine Fabiola, 9,, B-1340 Ottignies, Belgium
Gastrointest Radiol; 6(3):281-283 1981

Two patients, 65-and 66-yr-old men, with postnecrotic liver necrosis are described in whom ultrasound examination revealed subtle diffuse alterations in the liver architecture and thrombosis of the main portal trunk and its major branches, strongly suggestive of multifocal hepatocellular carcinoma (HCC). Diagnoses were confirmed by computed tomography in both cases and by autopsy in 1 case. The diagnostic value of determining the presence of portal vein thrombosis in patients with suspected HCC is discussed. (8 Refs)

9. CT OF INTRAMURAL ENDOMETRIAL CARCINOMA: CONTRAST ENHANCEMENT IS ESSENTIAL.

Hamlin DJ, Burgener FA, Beecham JB
Dept. Radiology, Univ. Florida Coll. Medicine, Box J-374, JHMHC, Gainesville, FL, 32610
AJR; 137(3):551-554 1981

The accuracy of computed tomography (CT) in recognizing early stage endometrial carcinoma was assessed in a prospective study in 10 patients in whom macroscopic and microscopic findings of the surgical specimen were correlated with the CT findings. In no instance was endometrial carcinoma confined to the uterine wall demonstrated on a precontrast examination. However, after iv infusion of 300 ml diatrizoate 30%, all seven carcinomas involving one-third or more of the thickness of the uterine wall were clearly demonstrated as hypodense lesions. In three patients the center of the hypodense lesion was significantly more enhanced and this was found at surgery to represent less necrotic tumor. Three carcinomas with lesser intramural extent were still invisible after contrast infusion. Because of slow contrast material accumulation in the myometrium and a delayed washout, the optimum time for scanning appears to be immediately after termination of the infusion when the bladder is not yet densely opaque since this may cause disturbing artifacts. The depth of myometrial invasion by endometrial carcinoma is an important prognostic factor in the disease and the CT demonstration of tumor extent may prove to be valuable in optimizing the selection of surgical and/or radiotherapeutic procedures. (Author abstract) (16 Refs)

10. EVALUATION OF COMPUTED TOMOGRAPHY IN THE MANAGEMENT OF TESTICULAR TERATOMA.

Husband JE, Barrett A, Peckham J
Dept. Diagnostic Radiology, Royal Marsden Hosp., Downs Road, Sutton, Surrey SM2 5PT, England
Br J Urol; 53(2):179-183 1981

An analysis has been made of data obtained by computed tomography (CT) scanning in 100 patients with testicular teratoma. The results have been compared with information obtained by conventional staging procedures and changes in patient management occurring as a direct result of CT have been noted. Although these tumors are rare, their pattern of metastasis to the retroperitoneum, mediastinum, lungs and liver is consistent. Thus the value of CT scanning can be tested in all of these sites in each patient and the indications for scanning clearly defined. (Author abstract) (6 Refs)

BREAST TUMORS

11. RADIOGRAPHIC SCREENING FOR BREAST CARCINOMA. I. PROGRAM AND PRIMARY FINDINGS IN 45-69 YEAR OLD WOMEN.

Andersson I
Dept. Diagnostic Radiology, Preventive Medicine, Univ. Lund, Malmo Allmanna Sjukhus, S-21401 Malmo, Sweden
Acta Radiol [Diagn] (Stockh); 22(2):185-194 1981

A cross-sectional randomized screening with mammary radiography of 15,748 women aged 45 to 69 and living in Malmo for the detection of breast carcinoma is described. The detection rate of breast carcinoma was 7.5 per 1,000, 16% of the carcinoma being non-invasive and 43 invasive with a diameter o f at most 10 mm. The overall rate of axillary metastases was 18%. The sensitivity of the radiography was 91.5%, the specificity 99.2% and the predictive value 47%. It is concluded that mammary radiography is an effective screening method for detecting early carcinoma. (Author abstract) (66 Refs)

12. DETECTION OF RECURRENT BREAST CANCER.

Cowan JD, Kies MS
Oncology Service, Brooke Army Medical Center, Box 517, Beach Pavilion, Ft. Sam Houston, TX, 78234
South Med J; 74(8):910-912 1981

Most clinicians attempt to identify and treat recurrent breast cancer at the earliest sign of relapse. In an effort to better define the usefulness of commonly used clinical and laboratory tools in evaluating patients after mastectomy, we retrospectively analyzed 120 cases and reviewed the literature. One hundred fifteen sites of metastatic disease were identified in 55 patients, with bone, lung, liver, and skin most common. History and physical examination disclosed 66% of these metastatic events. Of 36 patients with probable bone involvement, 15 were identified by bone scan while asymptomatic. Of 31 patients with evidence of pulmonary metastases, 12 were entirely asymptomatic when identified with a screening chest roentgenogram. In contrast, 36 of 45 hepatic, cutaneous, lymphatic, CNS, and ocular metastases were suggested by purely clinical findings. We conclude that basic clinical skills (ie, history-taking and physical examination) are two most important means by which we identify patients with recurrent breast cancer. While chest roentgenogram and bone scan may uncover metastases in asymptomatic patients, liver function tests and radionuclide scans of

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brain and liver have very low yield in patients clinically free of organ involvement. (Author abstract) (20 Refs)

13. STABILITY OF A MAMMOGRAPHIC MASS: A FALSE SENSE OF SECURITY.

Meyer JE, Kopans DB
Dept. Radiology, Harvard Medical Sch., Massachusetts General Hosp., Boston, MA, 02114
AJR; 137(3):595-598 1981

The observation of growth rates of human breast cancers on serial mammography has afforded an opportunity to document the spectrum of the natural history of these tumors in vivo. Five breast carcinomas in four patients were seen on mammography as clinically occult masses at least 1 cm in diameter. These lesions did not change in size on follow-up xeromammography over a minimum of 2 and a max of 4.5 yr from the original radiographic examination. Since it is common practice for radiologists to recommend a repeat examination in 3-12 mo of nonpalpable masses, architectural distortions, and asymmetric areas of increased density which may not have typical signs of malignancy, the lack of interval change does not necessarily indicate a benign process. (Author abstract) (4 Refs)

ENDOCRINE TUMORS

14. THE CLINICAL INVESTIGATION OF ADRENAL ANGIOGRAPHY.

Ito T
Dept. Radiology, Sch. Medicine, Kagoshima Univ., Kagoshima, Japan
Nippon Igaku Hoshasen Gakkai Zasshi; 41(4):320-349 1981

Adrenal angiography was investigated clinically in detail with special reference to anatomical analysis of angiographic appearances, characteristics of angiographic findings on some adrenal diseases and also the diagnostic accuracy between arteriography and venography. The adrenal angiograms of 92 patients, (56 hypertension or obesity; 19 primary aldosteronism, 7 Cushing's syndrome, 2 pheochromocytoma, 2 adrenogenital syndrome, 1 each non-functioning adenoma, cyst, hemangioma, metastatic tumor and Addison's disease) were subjected to the investigation. The obtained results were as follows: (1) Forty-seven selective inferior phrenic arteriograms and 43 selective middle adrenal arteriograms in 40 patients, and 59 inferior adrenal arteriograms (right 34, left 25) in 60 patients could be visualized. From the observation of these adrenal arteriograms, it was considered that on the right adrenal gland the catheterization to the right inferior phrenic artery and the right inferior adrenal artery, and on the left adrenal gland the catheterization to the left middle adrenal artery were beneficial and favorable procedures for the purpose of visualizing the adrenal glands adequately. (2) Catheterization of adrenal vein in 90 patients was successful at the rate of 98.9% on the left side and 76.7% on the right side. (3) Nineteen patients with primary aldosteronism were studied with regard to adrenal venography, arteriography and aldosterone assay in the adrenal vein. The diagnostic accuracy was 94.1% (16/17) at venography, 71.4% (10/14) at arteriography and 92.9% (13/14) at venous aldosterone assay. (4) Seven patients with Cushing's syndrome were all diagnosed with venography, and three patients were also diagnosed correctly by arteriography. (5) Venographic differential diagnosis on hyperplasia of Cushing's syndrome, primary aldosteronism and adrenogenital syndrome were considered to be difficult. (6) Twenty-eight of 36 patients with abnormal angiographic findings were operated on and all were proved to be correctly diagnosed. Over all, the diagnostic accuracy was 96.7% (29/30) at venography, 76.0% (19/25) at arteriography and 39.1% (9/23) at abdominal aortography. (69 Refs) (In JPN)

GASTROINTESTINAL TUMORS

15. ULTRASONOGRAPHY OF THE CECUM.

Gooding GA
Radiology Service (114), Veterans Admin. Medical Center, 4150 Clement St., San Francisco, CA, 94121
Gastrointest Radiol; 6(3):243-246 1981

Ultrasonic abnormalities in the cecum and the cecal bed are considered. The appearance of lesions in this area in both inflammatory and neoplastic processes are described. Nine patients with palpable right lower quadrant masses were examined by ultrasound using 2.25 or 2.5 megahertz medium-f ocus transducers on either analog or digital ultrasonic machines. Ultrasonography identified primary adenocarcinoma in two patients and recurrent adenocarcinoma to the cecal bed following right colectomy in another two. Metastases to the cecum of a leiomyosarcoma (1 patient) and lymphoma (1 patient) were also observed. Infections identified included tuberculosis (1 patient), amebiasis (1), acute appendicitis (1), and chronic appendicitis (1). One primary carcinoma was diffusely echogenic but well circumscribed. The other primary carcinoma of the cecum had high-amplitude asymmetric focal echoes in a primarily hypoechoic mass. The two recurrences of adenocarcinoma in the cecal bed produced masses that were both relatively hypoechoic with varying degrees of low-level echo amplitude within them. These lesions, as well as those of metastatic leiomyosarcoma and lymphoma, were larger than both the primary tumors and the infectious processes, the margination marked by poor definition and irregularity. The results indicated that ultrasound can define the cecal mass. (5 Refs)

16. MICROANGIOGRAPHIC STUDY OF COLORECTAL CANCERS.

Shimoyama T, Kitasato S, Takagi T, Nogawa T, Hirano T, Harada T, Yoshida C, Nakayama H, Hashimoto S, Fujii R, Setoguchi M, Ishikawa Y, Kotake Y, Ishii T, Uchida Y, Miura T, Tsuji Y
First Dept. Surgery, Nagasaki Univ., Sch. Medicine, Sakamoto-cho, Nagasaki 852, Japan
Nippon Geka Gakkai Zasshi; 82(2):169-180 1981

Sixty-nine patients with colorectal cancers who had surgery performed during the 5 yr from April, 1975 to March, 1980 in our department were studied. The microangiographic patterns of the tumors were compared with the histopathological findings. the normal vascular patterns were described. The vascular patterns of malignant lesions were classified into three groups: (1) changes of vascular lumen, (2) changes of the directions of vessels, (3) neovascularization. The vascular patterns of hyperplastic polyp and adenomatous polyp resembled the normal mucosa. However, in foci of a typical glandular proliferation within a polyp, the regular arrangement of the vessels had become disorganized. The polypoid cancer had long straight vessels appearing even straighter than the adenoma. In early elevated cancer (IIa type), the sm cancer (cancer is limited to the submucosa and does not reach the proper muscle) presented a hypovascular pattern, and the m cancer (cancer is limited to the mucosa and does not reach the submucosa), a

hypervascular pattern. The advanced cancer of type 1 showed hypervascular patterns and vascular disarray with vessels of varied size where histological foci of necrosis were often seen. The vascular patterns types of 2 and 3 were classified into 5 subtypes, and were related to the degree of cancer invasion and location. The carcinoma with liver metastasis had vascular disarray with histological foci of necrosis and the chan ges of vascularity outside the tumor were recognized. The findings obtained with microangiography correlated well with the histological observations with special reference to the interstitial reaction of the carcinoma. (36 Refs) (In JPN)

17. DOUBLE-CONTRAST ENEMA EXAMINATION FOR DETECTION OF RECTAL CARCINOMA.

Evers K, Laufer I, Gordon RL, Kressel HY, Herlinger H, Gohel VK
Dept. Radiology, Univ. Massachusetts Medical Center, 55 Lake Ave. North, Worcester, MA, 01605
Radiology; 140(3):635-639 1981

The role of the double-contrast enema examination (DCE) in the detection of rectal carcinoma was evaluated and compared to the proctoscopic examination. Records of 90 consecutive patients with a diagnosis of rectal carcinoma were reviewed. Sixty-six patients had a preoperative DCE. The correct diagnosis was either made or suggested in 91% of these patients. The proctoscopic examination was diagnostic in 86%. The causes of radiologic and proctoscopic error were evaluated. Findings confirm that the DCE is an accurate method for the diagnosis of rectal carcinoma. Careful examination of the rectum should be incorporated in all radiologic studies of the colon since a normal proctoscopic examination does not exclude the possibility of rectal carcinoma. (Author abstract) (27 Refs)

18. EXPERIMENTAL AND CLINICAL STUDIES OF PANCREATIC PARENCHYMOGRAPHY.

Sakamoto K
Dept. Radiology,. Kobe Univ., Sch. Medicine, Kobe, Japan
Nippon Igaku Hoshasen Gakkai Zasshi; 41(4):350-364 1981

With a view to detecting early cancer of the pancreas, the pancreatic parenchyma was opacified by means of ia injection of a new contrast medium consisting of 2 to 5% polyoxyethylene hydrogenated caster oil (HCO-50) and meglumine iodamide (or diatrizoate). In experimental studies, 10 ml of the contrast medium was injected into the gastroduodenal artery of a dog through a catheter introduced by Seldinger's technique over a period of 30 sec. On completion of injection, the parenchyma could be intensely opacified throughout the pancreas (pancreatic parenchymography). To evaluate its detectability for a small lesion, a pseudo-tumor of less than 5 mm in size was prepared in the pancreas, by intraparenchymal deposition of isobutyl acrylate (Aron Alpha A) through a fine needle. Pancreatic parenchymography was performed in this case with a favorable result that the tumor was recognized as a sharply defined filling defect on the parenchymogram corresponding to the mass. No significant side effect could be seen serologically or histologically in dogs submitted to this procedure. The procedure was then carried out in 61 patients with suspected pancreas cancer including metastatic or invasive lesions from the adjoining organs such as bile duct, duodenum and colon. A catheter was introduced into the gastroduodenal or dorsal pancreatic artery, then 15 to 20 ml of the con trast medium was injected over a period of 5 to 10 sec. Films were taken at intervals of 1 sec for 15 sec from the beginning of injection. Intense opacification was successful in 87% of the cases. The pancreatic parenchymography performed in patients with hypovascular lesions such as cancer of the pancreas, cholangioma and metastasis of colon cancer demonstrated the lesions as filling defects on parenchymograms. And, in one of the cases, an operation-proved, small metastatic tumor from the colon (1 x 1 cm in diameter) could be detected as a filling defect. On the other hand, hypervascular lesions of the pancreas were shown as more dense stains than hypovascular lesions. No untoward reaction could be seen in the patients subjected to this procedure. Consequently, pancreatic parenchymography is considered to become a useful radiodiagnostic method, especially for detection of early cancer of the pancreas. (Author abstract) (22 Refs) (In JPN)

19. EVALUATION OF CHOLANGEOGRAPHIC PROCEDURES IN DIAGNOSIS OF OBSTRUCTIVE JAUNDICE.

Satake K, Cho K, Tatsumi S, Kobayashi K, Umeyama K, Yamamoto S
First Dept. Surgery, Osaka City Univ Medical Sch., Asahi-Machi, Abeno-ku, Osaka 545, Japan
Am Surg; 47(9):387-392 1981

Endoscopic retrograde cholangiography, percutaneous transhepatic cholangiography with external bile drainage and a combined method utilizing both procedures were evaluated in 187 patients with obstructive jaundice. Ductal obstructive regions were located in 90% of cases by endoscopic retrograde cholangiography, and 55% of these were correctly diagnosed. Complications were observed in 7.9% with a mortality rate of 2.9%. The most serious complication was cholangitic sepsis. By percutaneous transhepatic cholangiography with external bile drainage, ductal obstructive regions were correctly located in 82%, 37% of these patients were correctly diagnosed. Complications occurred in 9.2% with a mortality rate of 1.5%. The most serious complication was massive bleeding. Successful external bile drainage could be obtained in most cases. The combined method overcomes the disadvantages of the single methods and the cause of obstructive jaundice can be diagnosed more precisely. The surgeon has a better knowledge of the type and the extent of the lesion prior to definitive surgery and can operate more safely on patients with obstructive jaundice when the serum total bilirubin, has decreased to a level below 5 mg/dl. (Author abstract) (6 Refs)

20. POSSIBILITIES AND LIMITS OF DIAGNOSTIC AND THERAPEUTIC ERCP IN OBSTRUCTIVE JAUNDICE.

Manegold BC
Abteilung fur Endoskopie, Klinikum der Stadt Mannheim, Theodor-Kutzer-Ufer, D-6800 Mannheim 1, W. Germany
Chirurg; 52(7):423-432 1981

Endoscopic retrograde cholangiography (ERC) is indicated in cases of obstructive jaundice with unknown causes, insufficient excretory cholangiography, hemobilia, planned sphincterotomy of Vater's papilla, planned biliary drainage, and if contrast media are not tolerated. ERC of carcinoma of Vater's papilla is impossible because of duodenal tumor stenosis. The carcinoma of Vater's papilla can be identified during duodenoscopy. Carcinomas of the pancreatic head are easily visualized in the ERC. ERC is not indicated for the investigation of a gall bladder carcinoma without jaundice. Primary bile duct carcinomas are indicated in the ERC by typical irregular wall contoures which are several cm long. Primary liver cell carcinomas are visualized with ERC if they are in a central location. Intrahepatic metastases on the other hand are better visualized with sonography or computer tomography. The retrograde implantation of a drainage catheter is indicated for palliative treatment of obstructive jaundice due to a tumor of

Vater's papilla. In cases of inoperability the catheter may remain established over a long period of time. (15 Refs) (In GER)

GENITOURINARY TUMORS

21. PALLIATIVE EMBOLIZATION IN RENAL TUMOURS USING CONTRAST-LABELED MATERIALS. FOLLOW-UP OBSERVATION BY ANGIOGRAPHY AND COMPUTED TOMOGRAPHY.

Weber J, Novak D, Kult K, Leichtweiss I

Strahlendiagnostische Abteilung Allgemeines, Krankenhaus Altona, Paul Ehrlich-Str. 1, 2000 Hamburg 50, W. Germany

Ann Radiol (Paris); 24(5):400-403 1981

Palliative transcatheter tumor embolization was performed in 52 patients having non-operable renal cell carcinoma. The following embolizing substances were used: particulate fibrospum and tachotop, semi-liquid ethibloc and liquid acrylate. In addition the Gianturco-coil was combined with embolization of sponge particles. Radio-opacity for long-term observations was achieved by labeling of the liquid and semi-liquid substances with lipiodol, ethyl monoiodostearate and iofendylate. The angiographic control of the therapeutic results was attempted 8-14 days after the interventional procedure and was realized in 33 patients, showing recanalization collateral circulation to the tumor-bed in 7 cases. Re-embolization therefore was executed within the same session. Non-invasive follow-up CT and sonography then helped to observe the long-term changes within and around the tumor-bed. The analysis of a 2 yr observation confirms the value of re-angiography for the short-term follow-up. Computed tomography is a reliable procedure for the further non-invasive follow-up of patients. (Author abstract) (30 Refs)

22. INTRAVENOUS UROGRAPHY IN THE FOLLOW-UP OF CARCINOMA OF THE BLADDER.

Booth CM, Kellett MJ

(c/o Kellett), St. Paul's Hosp., 24 Endell St., London WC2H 9AE, England

Br J Urol; 53(3):246-249 1981

A urographic survey of 250 patients being followed for bladder cancer revealed 3 unsuspected ureteric tumors and 18 cases of ureteric obstruction. The tumors occurred in patients always affected by bladder recurrences and the obstructions were largely due to treatment of paraureteric bladder tumors by cystodiathermy or radiotherapy. Regular follow-up iv urography is therefore unnecessary except in patients with frequent recurrences, but we advocate radionuclide renography as an essential, inexpensive screening test to rule out ureteric obstruction following the treatment of paraureteric tumors. (Author abstract) (2 Refs)

HEAD AND NECK TUMORS

23. EVALUATION OF CONTRAST RADIOGRAPHY IN NASOPHARYNGEAL MALIGNANCY.

Bhatia PL, Singh LS

Dept. Otolaryngology, Regional Medical Coll., Imphal - 795 004, India

Indian J Cancer; 18(2):141-146 1981

Contrast radiography was performed in 25 cases, including 6 controls and 1 nasopharyngeal fibroma, 1 antrochoanal polyp, 1 nasopharyngitis, 15 malignant lesions, and 1 recurrence of malignancy. Contrast radiography of the nasopharynx provided positive indication of malignancy in 53.3% of cases. The only definite criterion of malignancy was an irregular filling defect in contrast to the well defined smooth filling defect in benign lesions. Contrast radiography was more often positive when the presentation was neurological or nasal combined with cervical metastases, a proliferative lesion and a well or moderately differentiated squamous cell carcinoma. Contrast radiography should be performed in cases with a suspicion of nasopharyngeal malignancy but no clinical evidence of tumor. It should be repeated every 3 mo in cases of upper deep cervical metastases with occult primary in order to reduce the secondary primary gap. (15 Refs)

MUSCULOSKELETAL TUMORS

24. THE INDICATIONS FOR AND LIMITATIONS OF BONE SCINTIGRAPHY IN OSTEOGENIC SARCOMA: A REVIEW OF 55 PATIENTS.

McKillop JH, Etcubanas E, Goris ML

(c/o Goris) Div. Nuclear Medicine, Stanford Univ. Medical Center, Stanford, CA, 94305

Cancer; 48(5):1133-1138 1981

The value of radioisotope bone scanning at the time of presentation and serially during follow-up has been evaluated in 55 patients with biopsy-proven osteogenic sarcoma. Many of the patients studied were treated with adjuvant chemotherapy. Bone metastases were detected at presentation in only one patient and in a second patient, proximal extension of the primary tumor not evident on radiographs was demonstrated by the radioisotope technique. During follow-up, 20 patients experienced bone metastases and each had an abnormal bone scan. Eleven of these patients were asymptomatic for bone metastases at the time the scan became abnormal. Seven patients experienced bone metastases as their first site of tumor recurrence. The detection rate for soft tissue metastases was low, but the scan indicated stump recurrence in three patients. Although the yield is small, bone scanning is justified at presentation because the results may profoundly alter the management. During follow-up, routine bone scans are indicated in all patients, whether they have symptoms or not. (Author abstract) (13 Refs)

RESPIRATORY TUMORS

25. THE RADIOLOGY OF ASBESTOS-RELATED DISEASES WITH SPECIAL REFERENCE TO DIFFUSE MESOTHELIOMA.

Solomon A
Chaim Sheba Medical Center, Univ. Tel Aviv, Tel Aviv, Israel
Semin Oncol; 8(3):290-301 1981

The role of conventional chest radiography in the investigation and diagnosis of asbestosis and related diseases is reviewed. A routine posteroanterior chest film supplemented by 45 degree oblique views of both sides of the chest allows most pleural lesions to be profiled tangentially and thus seen at their max radiodensity. While improved film quality because of the use of high kilovoltage technique increases diagnostic accuracy, calcified plaques are better seen at lower kilovolt exposures. The most important factors in the development of asbestosis are the amount of dust to which the patient had been exposed and the duration of exposure. Pleural changes from asbestos exposure include diffuse pleural thickening, hyaline plaque formation, and less commonly, pleural effusions. The radiologic assessment of pleural changes, pleural calcification, parenchymal asbestosis, and malignant mesothelioma of the pleura is reviewed. Clinical presentation and symptoms of malignant mesothelioma of the pleura are discussed. Special techniques to demonstrate this condition include computed tomography and the induction of a pneumothorax to silhouette the lobular tumor mass. Differentiation of lung cancer occurring in asbestosis from circumscribing mesothelioma may be impossible. (33 Refs)

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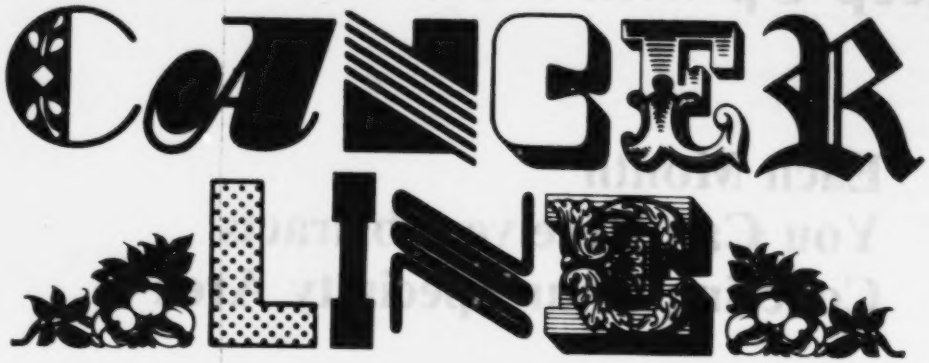

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CANCER DETECTION AND MANAGEMENT

Diagnostic Radiology

FEBRUARY, 1982

SERIES CT14 No. 82/02

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COMPUTER ASSISTED TOMOGRAPHY

1. RELIABILITY OF COMPUTED TOMOGRAPHY IN ASSESSING HISTOPATHOLOGICAL FEATURES OF MALIGNANT SUPRATENTORIAL GLIOMAS.

Lilja A, Bergstrom K, Spannare B, Olsson Y
Dept. Diagnostic Radiology, Univ. Hosp., S-750 14 Uppsala, Sweden
J Comput Assist Tomogr; 5(5):625-636 1981

A new method was developed whereby close comparisons can be made between components of a computed tomography (CT) image and neuropathological findings. This was achieved by a combination of intravital (terminal) CT, postmortem CT, and whole brain sectioning of formalin-fixed tissue. The method was applied in seven cases of malignant supratentorial astrocytic gliomas (Kernohan Grades III and IV) and in one case of thalamic ependymoma. The glioblastoma-like parts of the astrocytic gliomas were usually correctly delineated by postcontrast CT, although there were exceptions to this rule. Tumor components consisting of diffusely growing malignant astrocytoma were difficult or impossible to delineate by CT. Necrotic areas within the tumors were accurately outlined by postcontrast CT. Peritumoral edema was correctly delineated

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by CT, but growth of diffuse astrocytoma or the presence of astrocytic gliosis within this edematous area seems difficult or impossible to evaluate by current CT techniques. (Author abstract) (28 Refs)

2. COMPUTED TOMOGRAPHY VS LARYNGOGRAPHY: A COMPARISON OF RELATIVE DIAGNOSTIC VALUE.

Friedman WH, Archer CR, Yeager VL, Katsantonis GP
Dept. Otolaryngology, St. Louis Univ. Hospitals, 1325 S. Grand Blvd., St. Louis, MO, 63104
Otolaryngol Head Neck Surg; 89(4):579-586 1981

The diagnostic accuracy of computed tomography (CT) and laryngography (LGY) in the supraglottic, glottic, and subglottic regions was evaluated in 25 patients with laryngeal cancer. The axial view of CT was superior to the sagittal and coronal views of LGY; diagnostic accuracy was enhanced by the axial view in 15/25 patients. The supraglottic views of CT were superior to the supraglottic display of LGY in 16/25 patients; LGY was misleading in 10/16 cases, while CT was not misleading in any case. CT was superior or added to the diagnosis in evaluating the glottis in 9/25 cases, the subglottic region in 25/25 cases, the paraglottic region in 13/25 cases, the pyriform fossa in 24/25 cases, thyroid cartilage invasion in one, and arytenoid invasion in 3/25 cases. Overall, CT was clinically beneficial over and above the diagnostic accuracy of the LGY in 17/25 patients. LGY provided more information than CT in only one patient. LGY provided misleading information and detracted from the clinical evaluation in 17/25 patients. CT did not detract from the clinical picture in any case and was inaccurate in only two patients. Laryngoscopy was superior to LGY and CT in evaluating the pyriform sinus, but was useful in changing the predicted course of therapy in only one case. CT is the radiologic adjunct of choice in the diagnosis of laryngeal cancer, and LGY is no longer used on a routine basis. (7 Refs)

3. A CT SCANNING APPROACH TO THE EVALUATION OF LEFT PARAAORTIC PSEUDOTUMORS.

Marincek B, Young SW, Castellino RA
(c/o Young) Div. Diagnostic Radiology, Stanford Univ. Sch. Medicine, Stanford, CA, 94305
J Comput Assist Tomogr; 5(5):723-727 1981

Normal structures and organs were observed during clinical computed tomography as potential sources of false-positive tumor diagnosis. The left paraaortic region was a common location of pseudotumor masses that were frequently found to be of vascular or intestinal origin. Cases presented demonstrate that an appropriate use of conventional contrast medium can differentiate a normal anatomic structure simulating a mass from a pathologic process. (Author abstract) (14 Refs)

4. DETECTION AND STAGING OF PRIMARY RECTAL AND RECTOSIGMOID CANCER BY COMPUTED TOMOGRAPHY.

Thoeni RF, Moss AA, Schnyder P, Margulis AR
Dept. Radiology, M-396, Univ. California, San Francisco, CA, 94143
Radiology; 141(1):135-138 1981

Thirty-nine patients were examined by computed tomography (CT) prior to resection of primary rectal [23] or rectosigmoid carcinoma [16]. There were 3 patients in Stage II [thickened bowel (greater than 0.5 cm) alone], 12 in Stage IIIa (thickened bowel wall and invasion of adjacent tissue, muscles, or organs, but no extension to the pelvic side walls), 18 in Stage IIIb (extension to the pelvic side walls), 6 in Stage IV (pelvic tumor and distant metastases), and none in Stage I (intraluminal mass without wall thickening). CT detected all 39 rectal or rectosigmoid tumors (sensitivity = 100%) and had an overall staging accuracy of 92%. These results show that CT is useful and accurate in detecting and staging primary rectal and rectosigmoid tumors. (Author abstract) (11 Refs)

5. PITFALLS IN THE DIAGNOSIS OF HEPATIC CYSTS BY COMPUTED TOMOGRAPHY.

Barnes PA, Thomas JL, Bernardino ME
Dept. Diagnostic Radiology, Univ. Texas System Cancer Center, M.D. Anderson Hosp. and Tumor Inst., 6723 Bertner, Houston, TX, 77030
Radiology; 141(1):129-133 1981

Seven patients with computed tomographic (CT) evidence of cystic hepatic lesions are presented. In these cases, CT could not reliably distinguish benign hepatic cysts from other intrahepatic and extrahepatic cystic lesions. The attenuation coefficients of simple cysts and inflammatory or neoplastic lesions were similar, and smooth margins occurred in all three of these conditions. It was not possible to visualize and differentiate lesion walls from the surrounding normal hepatic parenchyma in some cases. It is concluded that the specificity of CT in the differentiation of benign cysts and other lesions is lower in the liver than it is in other areas, such as the kidney, and that in cases of diagnostic uncertainty, biopsy should be performed. (Author abstract) (19 Refs)

6. USE OF INTRAVENOUS LIPOSOLUBLE CONTRAST MATERIAL FOR THE EXAMINATION OF THE LIVER AND SPLEEN IN LYMPHOMA.

Vermess M, Bernardino ME, Doppman JL, Fisher RI, Thomas JL, Velasquez WS, Fuller LM, Russo A
Diagnostic Radiology Dept., Building 10, Room 6S211, NIH, Clinical Center, Bethesda, MD, 20205
J Comput Assist Tomogr; 5(5):709-713 1981

An experimental contrast material has been developed that, after iv injection, selectively opacifies the spleen and liver on computed tomography (CT). The contrast material contains iodinated ester of poppy seed oil in an emulsified form. Clinical trials were recently initiated to test the value of this contrast agent in Hodgkin's and non-Hodgkin's lymphomas. We present here two of our initial pat ients in whom we found lesions in the spleen or liver following the infusion of the experimental contrast material that were not visualized on the precontrast and urographic contrast material enhanced CT scans. (Author abstract) (13 Refs)

7. PREOPERATIVE RADIOGRAPHIC EVALUATION OF HYPERNEPHROMA.

Kothari K, Segal AJ, Spitzer RM, Peartree RJ
(c/o Segal) Dept. Diagnostic Radiology, Rochester General Hosp., 1425 Portland Ave., Rochester, NY, 14621
J Comput Assist Tomogr; 5(5):702-704 1981

Computed tomography (CT) of hypernephroma is compared with arteriography in terms of accuracy and cost. Computed tomography is shown to be as accurate as arteriography with respect to identification and diagnosis of most renal masses. In selected cases, it has been more accurate than arteriography because of the definition of adjacent retroperitoneum and tumor extent. Most of our patients having CT have required supplemental inferior vena cavography preoperatively, and a few selected cases have required arteriography. Nevertheless, the renal arteriogram can be omitted in most cases because CT

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is effective in diagnosing and staging hypernephroma, in addition to being noninvasive and more cost-effective. (Author abstract) (12 Refs)

8. CT OF SOFT-TISSUE TUMORS.

Egund N, Ekelund L, Sako M, Persson B
(c/o Ekelund) Dept. Diagnostic Radiology, Univ. Hosp., S-221 85 Lund, Sweden
AJR; 137(4):725-730 1981

Computed tomography was performed on 52 patients with soft-tissue tumors, 36 malignant and 16 benign. Major advantages with CT include the possibility of differentiating between lipoma and other tumors and the ability to demonstrate the transverse location of a lesion (intra- or extracompartmental). It was not possible to relate attenuation values to histologic type or grade of malignancy. CT was found superior to conventional radiography in demonstrating additional bony destruction of the pelvis and spine. The risk of overestimating the size of high grade malignant tumors because of accompanying edema is discussed. CT should precede angiography in the investigation of soft-tissue tumors, and angiography may primarily be reserved for those lesions where vascular relationships are not adequately demonstrated by CT. (Author abstract) (13 Refs)

9. CT-ASSISTED TREATMENT PLANNING SYSTEMS IN RADIOTHERAPY. PART 1. COMPARISON OF CONVENTIONAL AND CT-ASSISTED SYSTEMS.

Coffey CW
Chandler Medical Center, Univ. Kentucky, Lexington, KY
Appl Radiol; 10(5):55-64 1981

Computed tomography (CT), which has contributed significantly to the field of diagnostic radiology in the last 10 yr, is predicted to have a major impact soon in the field of radiation treatment planning (RTP). The state-of-the-art in CT-assisted RTP and the benefits of this approach are reviewed. Conventional RTP and CT-assisted RTP are compared as techniques. There are procedures and quality-control measures that should be used in implementing a CT-assisted RTP. Future trends in this field are also discussed. (16 Refs)

BREAST TUMORS

10. BREAST CANCER POPULATION SCREENING BY SINGLE VIEW MAMMOGRAPHY WITH SELECTIVE CLINICAL EXAMINATION - A PILOT STUDY.

Thomas BA, Price JL, Boulter PS
Guildford Breast Screening Project, Jarvis Screening Centre, Stoughton Road, Guildford, Surrey, England
Clin Oncol; 7(3):201-204 1981

All women aged 45-64 registered with three group practices were invited to be screened for breast cancer by single view mammography. Sixty-two per cent (1,008) of the 1,634 women invited attended, and 123 were recalled for full assessment by clinical examination, further mammographic views and aspiration cytology of palpable lesions, because of major symptoms or a suspected mammographic abnormality. Thirty-four (3.4% of those screened) were referred for a surgical opinion; 15 underwent biopsy for a lesion proving to be benign, and 7 had carcinoma. Only two women had a clinically palpable lesion, and in all cases the nodes were tumor free. This compares with the 5 cases/1,000 detected in the neighboring population of the same age undergoing screening by single view mammography and clinical examination by the same team, but the costs are about half those incurred in the major project, being lb5 per woman invited or lb7-lb8 per woman screened including the review visit but excluding capital costs and accommodation. No women presented with breast cancer within a yr of screening by single view mammography. This screening procedure is of high sensitivity and specificity comparable with the 91% sensitivity and 98.7% specificity obtained with clinical examination in addition to single view mammography. (Author abstract) (2 Refs)

11. ANALYSIS OF MAMMOGRAPHICALLY OBVIOUS CARCINOMAS OF THE BREAST WITH BENIGN RESULTS UPON INITIAL BIOPSY.

Meyer JE, Kopans DB
Dept. Radiology, Massachusetts General Hosp., Harvard Medical Sch., Boston, MA
Surg Gynecol Obstet; 153(4):570-572 1981

Although benign lesions of the breast may, on occasion, be indistinguishable from carcinoma on mammography, the presence of a typical malignant tumor justifies a strong roentgenographic impression which should be nearly 100% accurate. During the past 3 yr, 435 carcinomas of the breast were evaluated by xeromammography prior to surgical excision, 370 of which presented as palpable lesions. In six patients, the initial biopsy of a palpable area yielded benign results, despite a roentgenographic report indicating the presence of a carcinoma. Repeat mammography after biopsy documented the persistence of the suspicious area, all of which were carcinoma upon re-excision. Roentgenographic reappraisal is imperative in c ircumstances in which the biopsy results do not corroborate the roentgenographic findings. Preoperative needle localization is a useful adjunctive measure to ensure that a palpable area corresponds to a mass visible on the mammogram. (Author abstract) (2 Refs)

12. RESULTS OF ULTRASONOGRAPHIC EXAMINATIONS IN DIAGNOSIS OF CARCINOMA OF THE BREAST.

Schmidt W, Teubner J, Van Kaick G, Von Fournier D, Kubli F
Ultraschalldiagnostik, Univ.-Frauenklinik, Vossstrasse 9, 6900 Heidelberg, W. Germany
Geburtshilfe Frauenheilkd; 41(8):533-539 1981

The article reports on results of ultrasonographic examinations in a total of 142 woman patients with 131 histologically confirmed findings. In 53 cases (41%) a carcinoma was identified by histological examination. On the whole, 87% of all carcinomas were properly identified and classified via ultrasonography prior to surgery; the percentage of accurate identification was about 92% for carcinomas of the breast. Of 24 cases with T0-T1 stages, 75% were properly recognized via sonography, whereas the percentage of accuracy was 83% for mastocarcinomas. A sonographically important criterion of malignancy is the so-called central 'tumor ultrasound shadow'. In the present study, 55% of all histologically confirmed carcinomas were characterized by this phenomenon. This so-called 'tumor ultrasound shadow' was most frequently seen in scirrhous carcinomas, the incidence being 68%. In other histological types of carcinoma this 'ultrasound shadow' phenomenon is a hardly reliable sonographic sign of malignancy. The 'ultrasound shadow phenomenon' was also seen in benign changes with an incidence rate of 18%. False positive results were ob-

tained in 36% of the patients on the basis of sonographic examination. Cystic changes in the breast - with an incidence of 17% in all benign changes - were always correctly diagnosed via ultrasonography. The smallest cyst which could be identified by this method had a diameter of 7 mm. According to the results available to date, ultrasonography of the breast can be considered already now as a meaningful additional examination method in mammography. (Author abstract) (38 Refs) (In GER)

GASTROINTESTINAL TUMORS

13. MINIMUM REQUIREMENT IN DIANGOSTIC X-RAY EXAMINATION OF THE COLON.

Bargon G

Rontgendiagnostische Abteilung, Zentrum fur Radiologie der Universitat Ulm, Ulm, W. Germany

Roentgenpraxis; 34(9):366-369 1981

The double-contrast method according to the Malmo technique is the only contrast technique for the diagnostic examination of the colon which satisfies the high diagnostic requirements, especially in the diagnosis of small tumors and polyps. The incidence of perforation is 1:2,250-12,000. The importance of very careful preparation to remove fecal residues is emphasized. (11 Refs) (In GER)

14. THE ROLE OF ULTRASOUND IN THE EVALUATION OF HEPATIC NEOPLASMS.

Mayes GB, Bernardino ME

(c/o Bernardino) Dept. Diagnostic Radiology, M. D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030

Semin Ultrasound; 2(3):212-218 1981

In the evaluation of liver for malignant disease, ultrasound (US) B-mode scans at 1-cm intervals or less in both transverse and longitudinal planes permits visualization without compound scanning artifacts. Four basic US patterns of hepatic neoplasms have been identified. Type A (23% of cases) is characterized by discrete hypoechoic masses, Type B (30% of cases) by echogenic masses, Type C (2% of cases) by discrete echo-free masses, and Type D (35% of cases) by diffuse inhomogeneity of the liver. The angiographic appearance of the tumor, ie, its vascularity, could not be correlated with its US pattern. US follow-up as a measure of the effectiveness of chemotherapeutic treatment is useful; US was well able to demonstrate three possible outcomes: no change, progression of size or extent of disease, and decrease in size or extent of disease. However, in 10-11% of cases, US follow-up is equivocal because the US pattern changes (eg, from echogenic to necrotic, diffuse, or hypoechoic, from necrotic to septated), and no consistent correlation between pattern change and clinical response to chemotherapy has yet been shown. Some data manipulation processing of sonograms is becoming possible using digital equipment and is useful in certain cases. (11 Refs)

15. PERCUTANEOUS TRANSHEPATIC FINE-NEEDLE CHOLANGIOGRAPHY IN THE DIAGNOSIS OF ACUTE BILE DUCT OBSTRUCTION.

Schoenemann J, Geisthovel W, Laum J

Medizinische Abteilung, St. Elisabeth-Krankenhaus, Werthmannstrasse 1, D-5000 Koln 41, W. Germany

Med Welt; 32(32/33):1200-1201 1981

Percutaneous transhepatic fine-needle cholangiography (PTFC) was employed in 70 patients with acute bile duct obstruction. Malignant stenosis was found in 34 cases: the underlying cause was bile duct carcinoma in 17/34 cases, carcinoma of the head of pancreas in 9, carcinoma of the ampulla of Vater in 3, and other tumors in 5. Benign stenosis was found in 10/70 cases, choledocholithiasis in 14, intrahepatic cholestasis in 4, and it was impossible to visualize the bile duct in 8 cases. Thus, the bile duct system was visualized in 88.6% of all cases, compared with 79.2% of 929 cases by endoscopic retrograde cholangiography. There were three severe and nine mild complications. The former included perforation of the gallbladder in one case and bile discharge in two. The mild complications included pains in eight cases, pains with hypotension in three, and puncture of the kidney in one. PTFC was used for external bile duct drainage in 11 patients, including four with bile duct carcinoma, one with gastric carcinoma, two with carcinoma of the ampulla of Vater, and one with pancreatic carcinoma. (8 Refs) (In GER)

16. SONOGRAPHIC PATTERNS OF ASCITES.

Gefter WB, Arger PH, Edell SL

Dept. Radiology, Hosp. Univ. Pennsylvania Tumor Inst., 3400 Spruce St., Philadelphia, PA, 19104

Semin Ultrasound; 2(3):226-232 1981

The ultrasound (US) features of ascites are described that can help differentiate simple transudates from inflammatory or neoplastic exudates. The overall gain and time-compensation curve used should be consistent for given transducer frequency. Static longitudinal and sagittal scans are usually sufficient. The transudative pattern of typical serous ascites is mobile, echo-free, rather uniformly distributed fluid regions shaped by the adjacent structures that it surrounds; distribution of fluid is not determined solely by gravity but also by vol, boundaries of peritoneal compartments, fluid density, ip pressures, and fluid origin. Exudative pattern of ascites may take the form of multiple, loculated fluid pockets that show little change with alteration in patient position and that have a rounded, cystic appearance; internal echoes indicate a clot, fibrous strands, or other debris. There may be a clumping or matting of bowel loops associated with ihcreased echogenicity. Associated findings may indicate cirrhosis, congestive cardiac failure, kidney disease, hepatoma, pancreatitis, pancreatic carcinoma, and other malignancies. One study showed that the accuracy of US in differentiating transudative from exudative ascites was 82%. The other entities that may be confused with ascites include fluid-filled bowel, subcapsular hepatoma, pleural effusion, and preperitoneal fat. Computed tomography may offer some diagnostic advantages over US in evaluating ascites, such as in the identification of masses which coexist with ascites. (20 Refs)

GENITOURINARY TUMORS

17. PREOPERATIVE ARTERIAL OCCLUSION IN RENAL TUMORS: 3 YEARS EXPERIENCE.

Mobilio G, Cavalli A, Bianchi G
Dept. Urology, Univ. Hosp., Verona, Italy
Int Urol Nephrol; 13(1):25-33 1981

Preoperative embolization of renal neoplasms in 42 patients (33 men, 9 women; 20-74 yr old) was reported. Clinical stage of the tumor was T2 in 11, T3 in 28, and T4 in 3. Single or multiple metastases (lung, ribs, sternum, and suprarenal glands) were noted in 11. All of the tumors were adenocarcinoma. Gelfoam was used as the embolization material in 41 and isobutyl-2-cyanoacrylate (IBCA) was used in 1. Embolization materials were injected manually under constant radioscopic control, and reduction of the tumor vascularity was identified with control arteriographies. Surgical specimen angiography was performed in 10 cases, and a patency of neoplastic vessels was noted in those that were obliterated preoperatively. Surgery was performed from a few hr to 12 days after embolization, but most of the patients (36/42) we re operated on within 2 days. Intraoperative bleeding was slight in all 42 patients, and embolus detachment was easy or fairly easy in 36/42 and difficult in 6/42. Side effects of embolization included intense flank pain immediately after embolization and hyperpyrexia. Results suggested that surgery was best performed within 24 hr of embolization to reduce the number and duration of clinical sequelae. (6 Refs)

18. LYMPHOGRAPHY.

Macdonald JS
Dept. Diagnostic Radiology, Royal Marsden Hosp., Inst, Cancer Res., London, England
Recent Results Cancer Res; 78:97-107 1981

The limitations and applications of lymphography (LYM) in patients with carcinoma of the prostate are reviewed. LYM will only pick up metastases when they have reached the iliac nodes and when they passes beyond these to the para-aortic region. Technical failure to cannulate the lymphatics will occure in 1-2% of patients. Some older patients will be poor candidates for LYM because of poor respiratory reserve. Accuracy rates of 69%, 75%, and 78%, have been reported in three series. Features of diagnostic importance are presented. When deposits grow in nodes, they tend to be spherical or ellipsoidal in shape. After LYM, the contrast material is retained in the nodes over a long period (for about 1 yr in diagnostic amounts), and this may allow their behavior to be followed. LYM should be considered a dynamic investigation. The preceding principles were used to classify the results of LYM in 74 patients with untreated carcinoma of the prostate. There was an overall incidence of involved nodes in 51% of patients, and 25% of these had involved para-aortic nodes. The accuracy of LYM was estimated to be approx 90%. LYM, despite its limitations, provides valuable information to be used in planning treatment for individual patients, particularly those with no other evidence of distant metastases. (9 Refs)

MUSCULOSKELETAL TUMORS

19. PERIOSTEAL DESMOID OF THE METAPHYSIS; DIFFERENTIAL DIAGNOSIS FROM MALIGNANT BONE TUMORS BY BONE SCINTIGRAPHY.

Feine U, Ahlemann LM
Nuklearmedizinische Abteilung, Medizinisches Strahleninstitut der Universitat, Rontgenweg 11, D-7400 Tubingen, W. Germany
ROEFO; 135(2):193-196 1981

Radiographic findings (cortical spicule and small cortical erosions) suggested osteogenic sarcoma of the distal femur in three children (two boys and one girl, 8-13 yr old), for whom the other clinical and anamnestic findings were typical for periosteal desmoid. The bone scans, performed for differential diagnosis, were definitely negative in all three cases, which ruled out the malignant nature of the process, and the diagnosis of periosteal desmoid was retained. The diagnosis was confirmed by the clinical course in all cases. The findings indicate the value of negative bone scan in the differen tial diagnosis between a malignant tumor and a periosteal desmoid. (12 Refs) (In GER)

* U. S. GOVERNMENT PRINTING OFFICE : 1982—361-847/111

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COMPUTER ASSISTED TOMOGRAPHY

1. INVESTIGATION OF COMPUTED TOMOGRAPHY FOR CEREBELLAR HEMANGIOBLASTOMA.

Nakao S, Kikuchi H, Matsumoto A, Karasawa J, Arimitsu T
Dept. Neurosurgery, Natl. Cardiovascular Center, Japan
Neurol Surg; 9(3):277-283 1981

Preoperative plain and enhanced computed tomographic (CT) findings of six cases of cerebellar hemangioblastoma (5 men, 1 woman; av 50.6 yr old) were studied. An Electronic Music Industries (EMI)-1010 scanner was used with 100 ml of 65% Angiographin. Profiles of x-ray absorption values were made in 5/6 cases. Two types of hemangioblastomas were distinguishable with CT, a solid type that is an isodensity mass surrounded by a low density rim, and a cystic type that is shaped like a cyst an d has mural nodules in the cyst wall. In 2/3 cases of solid type hemangioblastomas an irregularly shaped cyst was observed with enhanced CT in the central portion of the tumor. Enhanced CT patterns of the mural nodules in the cystic type tumors showed variation in x-ray absorption values, but the mural nodules in the solid type tumors showed consistent x-ray absorption values. Although CT was

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thought to be reliable for demonstrating solid tumors, cystic components, and tumor-associated hydrocephalus, vertebral angiography was thought to be an important adjunct to show the vascular nature of the tumor and mural nodules, so both should be used for preoperative diagnosis of hemangioblastomas. (8 Refs) (In JPN)

2. COMPUTED TOMOGRAPHY OF INTRACRANIAL EPIDERMOID TUMOURS WITH SPECIAL REFERENCE TO ATYPICAL FEATURES.

Handa J, Okamoto K, Nakasu Y, Nakasu S, Nakano Y
Dept. Neurosurgery, Shiga Univ. Medical Sciences, Seta, Ohtsu, Shiga-ken 520-21, Japan
Acta Neurochir (Wien); 58(3/4):221-228 1981

Intracranial intradural epidermoid tumors have been known to show characteristic CT features consisting of non-enhancing lucent lesions with sharply defined margins that are often irregular and scalloped. Since the epidermoid tumors are benign, potentially curable lesions, it should be also noted that they may occasionally show atypical CT features such as dense lesion, definite marginal enhancement following contrast medium injection, or tumor associated with large, heavy calcifications. Four such atypical cases are reported, and the literature is reviewed. (Author abstract) (16 Refs)

3. PINEAL REGION TUMORS: COMPUTED TOMOGRAPHIC-PATHOLOGIC SPECTRUM.

Futrell NN, Osborn AG, Cheson BD
(c/o Osborn) Dept. Radiology, Univ. Utah Coll. Medicine, 50 North Medical Dr., Salt Lake City, UT, 84132
AJR; 137(5):951-956 1981

While several computed tomographic (CT) studies of posterior third ventricular neoplasms have included descriptions of pineal tumors, few reports have concentrated on these uncommon lesions. Some authors have asserted that the CT appearance of many pineal tumors is virtually pathognomonic. A series of nine biopsy-proved pineal gland and eight other presumed tumors is presented that illustrates their remarkable heterogeneity in both histopathologic and CT appearance. These tumors included germinomas, teratocarcinomas, hamartomas, and other varieties. They had variable margination, attenuation, calcification, and suprasellar extension. Germinomas have the best response to radiation therapy. Biopsy of pineal region tumors is now feasible and is recommended for treatment planning. (Author abstract) (21 Refs)

4. ACUTE ORBITAL PSEUDOTUMORS: CLASSIFICATION AND CT FEATURES.

Nugent RA, Rootman J, Robertson WD, Lapointe JS, Harrison PB
Dept. Diagnostic Radiology, Univ. British Columbia, 855 West 12th Ave., Vancouve r, British Columbia V5Z 1M9, Canada
AJR; 137(5):957-962 1981

Acute orbital pseudotumors are inflammatory lesions of unknown etiology that may affect part or, less often, all of the tissue within the orbit. A retrospective computed tomographic (CT) study of 16 patients demonstrated that these lesions occur in one of five specific anatomic patterns: anterior, posterior, diffuse, lacrimal, or myositic. The most common location was lacrimal followed by anterior pseudotumors. Posterior, diffuse, and myositic pseudotumors are equally frequent. Localization on the basis of clinical features correlated with the CT localization. Illustrative cases of each of the five types are included. The role of CT in evaluating the therapeutic response is discussed. (Author abstract) (12 Refs)

5. DIFFERENTIATION OF PYRIFORM SINUS CANCER FROM SUPRAGLOTTIC LARYNGEAL CANCER BY COMPUTED TOMOGRAPHY.

Larsson S, Mancuso A, Hoover L, Hanafee W
Dept. Radiology, Univ. California Los Angeles Center for Health Sciences, Los Angeles, CA, 90024
Radiology; 141(2):427-432 1981

Nine pyriform sinus tumors and 16 supraglottic laryngeal lesions were studied by computed tomography. The pyriform sinus tumors had a much higher incidence of thyroid cartilage invasion (5 of 9 patients) and involved the posterolateral margins of the cartilage. Only 2 of 16 supraglottic tumors reached the thyroid cartilage, involving the midline or more inferior margins. The supraglottic tumors grew in a circumferential pattern, and when the pre-epiglottic space was involved, extension was bilateral. Lesions of the pyriform sinus more frequently showed unilateral involvement. Lymph node metastases were seen in an approx equal proportion of patients in the two groups, and they correlated more with the size of the primary tumor than with its site of origin. Posteroinferior invasion of the space between the thyroid and cricoid cartilage was seen only with pyriform sinus lesions. (Author abstract) (10 Refs)

6. COMPUTERIZED TOMOGRAPHIC DIAGNOSIS OF PARACARDIAC MASSES.

Handler JB, Higgins CB, Warren SE, Gibbons JA, Vieweg WV
Cardiology Branch, Naval Regional Medical Center, San Diego, CA, 92134
West J Med; 135(4):271-275 1981

The use of computerized transmission tomography (CTT) in the noninvasive differentiation of intrinsic cardiac disease and paracardiac masses is described. Seven patients seen during the past 5 yr in whom chest roentgenograms were interpreted as indicative of intrinsic cardiac disease and paracardiac masses is described. Seven patients seen during the past 5 yr in whom chest roentgenograms were interpreted as indicative of intrinsic cardiac disease were evaluated. In six of these patients cardiac catheterization was eventually done. In the seventh, extracardiac disease was demonstrated by CTT, o bviating the need for preoperative catheterization. Lesions masquerading as intrinsic cardiac disease included nodular sclerosing Hodgkin's disease originating in a thymic cyst, pericardial pseudocyst, mediastinal teratoma, thymoma, desmoid tumor, and Hodgkin's disease in a thymus presenting as enlargement of the main pulmonary artery. These cases indicate that pericardiac masses may alter the cardiac contour in such a manner as to mimic the configurations of intrinsic cardiac disease. Physical examination and electrocardiograms may also support misdiagnosis, particularly when extracardiac masses cause compression of the pulmonary artery. CTT can often be very useful in delineating the extracardiac nature of such lesions. (15 Refs)

7. COMPUTED TOMOGRAPHY IN EVALUATION OF THE PANCREAS.

Weyman PJ, Stanley RJ, Levitt RG
Mallinckrodt Inst. Radiology, 510 South Kingshighway Blvd., St. Louis, MO, 63110
Semin Roentgenol; 16(4):301-311 1981

Computed tomography (CT) of the pancreas is reviewed and illustrated. Topics presented include technique, normal anatomy, pathologic changes (inflammatory lesions, neoplastic lesions: pancreatic tumors), and CT and other imaging methods. In 216 patients with pancreatic disease examined with a 3 sec EMI 7070 scanner, only 2 CTs were unsuccessful. Neoplasms

discussed include pancreatic carcinoma, islet cell tumors, neoplasms involving the pancreas secondarily (lymphoma or metastases to peripancreatic lymph nodes), cystadenoma, and cystadenocarcinoma. Diagnosis by CT is examined with respect to ultrasound, endoscopic retrograde cholangiopancreatography, percutaneous needle biopsy, fine needle percutaneous transhepatic cholangiography, and pancreatic arteriography. (38 Refs)

8. COMPUTED TOMOGRAPHY OF THE ADRENAL GLAND.

Hattery RR, Sheedy PF, Stephens DH, Van Heerden JA
Dept. Diagnostic Radiology, Mayo Clinic, 200 First St., S. W., Rochester, MN, 55901
Semin Roentgenol; 16(4):290-300 1981

Computed tomography (CT) analysis of the adrenal gland is reviewed and illustrated. Topics presented include anatomy, technique, adrenal tumors (stromal tumors: adrenal cysts, myelolipoma; medullary tumors: ganglioneuroblastoma-neuroblastoma, pheochromocytoma; nonfunctioning cortical tumors: adenoma, adenocarcinoma; functioning cortical tumors: Cushing syndrome, adrenogenital syndrome, feminizing syndrome, mixed syndrome, primary aldosteronism [Conn syndrome], metastasis) and adrenal screening. During the period 1976-1980, approx 3% of 15,000 patients referred for CT body scans had suspected adrenal pathology. Of these, more than half had positive CT scan and showed a spectrum of adrenal pathology; tumors were 8% stromal (5% cyst, 3% lipoma or myelolipoma), 27% medullary (5% ganglioneuroblastoma or neuroblastoma, 22% pheochromocytoma), 48% cortical (8% carcinoma, 14% hyperplasia, 26% adenoma: 40% nonfunctioning, 40% aldosteronism, 20% Cushing syndrome), and 17% metastatic. CT adrenal scanning appears to be the most accurate noninvasive imaging procedure available for evaluation of the adrenal glands. (30 Refs)

9. CT OF THE KIDNEY AND PERINEPHRIC SPACE.

Love L, Churchill RJ, Reynes CJ, Moncada R, Demos T
Dept. Radiology, Loyola Univ. Medical Center, 2160 South First Ave., Maywood, IL, 60153
Semin Roentgenol; 16(4):277-289 1981

Computed tomography (CT) diagnosis of renal and perirenal disease is reviewed. Topics presented and illustrated include indications, technique, renal disease (renal cysts, noncystic renal masses, calcification in a renal mass, staging of renal cell carcinoma, bilateral renal carcinoma, evaluation for tumor recurrence), evaluation of the perirenal space, and new areas of interest. Use of CT as a staging method for renal cell carcinoma is described. The stages can be subdivided to reflect differences in prognosis. In a series of 44 cases where CT was the principle preoperative diagnostic tool, and operative confirmation of diagnosis was obtained, staging accuracy was approx 90%. Recognition of features of the disease improving results, errors made in evaluating renal vein and vena caval involvement, and backup methods are discussed. Among 49 (5 unconfirmed) cases 5 were bilateral renal cell carcinoma; CT was the preferred method for discovering which of a patient's kidneys is the better candidate for partial resection. Survival rate is better when treatment is given for locally recurrent tumor before recurrence is obvious; CT is recommended for monitoring the retroperitoneal space after nephrectomy for renal cell carcinoma. Difficulties encountered with renal CT scanning are considered. Evaluation of the perirenal space is discussed with respect to extension of solid masses from the kidney into the various spaces. (32 Refs)

10. DIAGNOSIS OF ANGIOMYOLIPOMA WITH SPECIAL CONSIDERATION OF COMPUTED TOMOGRAPHY.

Hantelmann W, Rost A, Wegener OH, Loy L
Urologische Klinik und Poliklinik, Klinikum Steglitz der Freien Univ. Berlin, Hindenburgdamm 30, D-1000 Berlin 45, W. Germany
Helv Chir Acta; 48(3/4):359-364 1981

Diagnosis of renal angiomyolipoma (AML), a rare benign hamartoma, using iv pyelography (IVP), arteriography, and computed tomography (CT) is discussed based on four clinical cases. AML consists of two typer of tumor: One is accompanied by tuberous sclerosis,is usually bilateral, multifocal, and asymptomatic, and occurs equally in both sexes. The other is independent of tuberous sclerosis, usually unilateral, shows urological symptoms, and occurs primarily in females. Preoperative diagnosis is difficult at this time. Histologically AML is characterized by hamartoma with smooth musculature vessels and fatty tissue in distinct proportions. Three cases were diagnosed as hypernephroid carcinoma (HC) based on symptoms, IVP, and arteriography. Although in two cases CT indicated AML, the novelty of the technique caused these findings to be disregarded. In all three cases radical nephrectomy was performed for HC. Histological examination later identified AML. In a fourth case CT allowed AML to be distinguished from HC , and surgery was avoided. Proper combination of CT with IVP and arteriography should facilitate correct diagnosis of AML. (12 Refs) (In GER)

11. STAGING OF TESTICULAR CARCINOMA: COMPARISON OF CT AND LYMPHANGIOGRAPHY.

Thomas JL, Bernardino ME, Bracken RB
Dept. Diagnostic Radiology, Univ. Texas System Cancer Center, M.D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
AJR; 137(5):991-996 1981

Clinical staging by computed tomography (CT) and lymphangiography was compared in 27 patients with pathologically staged testicular carcinoma, primarily nonseminomatous tumors. The overall accuracy of CT was 89%; the sensitivity, 90%; and the specificity, 83%. The accuracy of lymphangiography for detecting nodal abnormalities was 70%; the sensitivity, 71%; and the specificity, 67%. In 48% of cases, CT provided better delineation of tumor margins. Also, CT detected retrocrural nodal enlargement in 14% of patients and hepatic metastasis in 5%. The usefulness and limitations of both methods are discussed along with their clinical implications. (Author abstract) (18 Refs)

12. PROSPECTIVE COMPARISON BETWEEN CLINICAL AND CT STAGING IN PRIMARY CERVICAL CARCINOMA.

Walsh JW, Goplerud DR
Dept. Diagnostic Radiology, Virginia Commonwealth Univ/Medical Coll. Virginia, Box 615 MCV Station, Richmond, VA, 23298
AJR; 137(5):997-1003 1981

For 32 mo, clinical and computed tomographic (CT) staging were compared prospectively in 75 patients with primary untreated cervix carcinoma. Clinical stages evaluated were IA (1 patient), IB (9), IIA (5), IIB (18), IIIB (38), IVA (1), and IVB (3). CT agreed with clinical stage in 65%, upstaged tumors in 19%, and downstaged tumors in 16%. In comparison with surgical stage in 25 patients, CT was inaccurate in differentiating IB and IIB lesions but highly accurate in diagnosing IIIB, IVA, and IVB tumors. Pretreatment CT was most valuable in assessing parametrial and sidewall tumor extension, uterine size, endometrial tumor extension, pelvic adenopathy, and ad-

nexal masses. Posttreatment CT in 15 patients was most valuable in assessing extrapelvic metastases to liver, paraaortic lymph nodes, and bowel mesentery. CT offers distinct advantages over current radiologic staging techniques and can be integrated into the present International Federation of Gynecology and Obstetrics classification of cervix carcinoma. (Author abstract) (22 Refs)

13. CONTRIBUTION OF COMPUTERIZED TOMOGRAPHY TO THE MANAGEMENT OF GYNAECOLOGICAL MALI GNANCY (MEETING ABSTRACT).

Donnai P, Fouracres M, Isherwood I, Mamtora H, Randall S, Tindall VR
Departments of Obstetrics and Gynaecology, St. Mary's Hospital, Manchester, England
Obstetric and Gynaecology: 8th Asian Congress, October 25-31, 1981, Melbourne, Australia Asia and Oceania Federation of Obstetricians and Gynaecologists 352 pp., 1981.

Although Computerized Tomographic (CT) scanning has been widely used in the management of patients with malignant disease there have been few reports which seek to evaluate the role of this procedure in gynecological patients. The potential advantages of this form of diagnostic imaging within the pelvis include delineation of the primary tumor mass, dectection of secondary lymphatic spread and metastatic deposits; obstructive uropathy and fistulae may also be identified. CT scanning is therefore of value in planning the radical surgical management of patients with gynecological malignancy clinically suitable for Wertheim's operation and exenteration procedures. Since the investigation is non-invasive and may be repeated it has a place in the follow-up response of patients after surgery or those being treated with chemotherapy. During the past 4 yr 100 patients referred to this department with a variety of gynecological malignancies have undergone CT scanning. It has been possible to compare the operative findings with the CT scan prediction in 60 patients, 40 of whom underwent surgery for primary or recurrent cervical carcinoma. Histological confirmation of lymph node spread was detected in a significant number of cases. (no Refs)

14. COMPUTED TOMOGRAPHY OF THE RETROPERITONEAL VASCULATURE AND LYMPH NODES.

Korobkin M
Dept. Radiology, Duke Univ. Medical Center, Box 3808, Durham, NC, 27710
Semin Roentgenol; 16(4):251-267 1981

Computed tomography (CT) demonstration of anomalous variations and intrinsic abnormalities of the abdominal aorta, inferior vena cava, and retroperitoneal lymph nodes is described. Techniques are presented. Contrast-enhanced CT scans are often needed to properly evaluate pathologic conditions in the blood vessels. Assessment of abdominal lymph nodes depends on opacification of bowel loops with dilute contrast material. Assessment of para-aortic nodes, pelvic nodes, and mesenteric nodes is reviewed. Diseases discussed are lymphoma, pelvic cancer, and testicular cancer. For evaluation of lymphoma, CT is a reasonable alternative to lymphography, except perhaps in patients with Hodgkin disease with negative abdominal CT. In both Hodgkin and nonHodgkin lymphoma, CT demonstration of unequivocal nodal enlargement indicates lymphoma in the vast majority of patients; if abdominal CT is normal in Hodgkin disease, lymphogram may be indicated. CT is an accurate screening method to detect enlarged pelvic lymph nodes in patients with carcinoma of the prostate, bladder, or cervix. Negative CT should be followed by lymphography to detect metastases in unenlarged pelvic nodes. Abnormal lymphogram might be followed by percutaneous biopsy under fluoroscopic control. CT appears to demonstrate size and extent of retroperitoneal lymph node involvement from testicular teratoma more accurately than does lymphography. The small number of false positive CT examinations indicates that initial CT would be a reasonable approach; only if CT were negative or equivocal would lymphography need to be performed. (43 Refs)

15. PROSPECTS FOR COMPUTED TOMOGRAPHY IN RADIATION THERAPY.

Wizenberg MJ
1601 Westchester Drive, Oklahoma City, OK, 73120
CT; 5(3):283-287 1981

Computed tomography (CT) can provide crucial information regarding stage and extent of tumor. Such information has led to substantial changes in proposed treatment plans, particularly for tumors located in the torso. Improved resolution of CT scans resulting from thinner slices, more rapid scan times, and improved algorithms have made possible significant advances in the ability to determine extent of disease. CT scans have regularly demonstrated more extensive disease than had previously been appreciated; their use in staging should result in a more meaningful comparison of results obtained by radiation therapy or surgery. CT scans used in follow-up offer comparable accuracy and can be used to judge the efficacy of treatment and as a guide to subsequent therapeutic decisions. Dose delivery and therapeutic ratio, pinpointing tumor location, identifying and correcting for tissue inhomogeneities, three-dimensional treatment planning, treatment planning with contemporary scanners, and cost-effectiveness of CT-based treatment planning are discussed. (34 Refs)

BREAST TUMORS

16. ULTRASOUND EXAMINATION OF THE BREAST (MEETING ABSTRACT).

Ennis JT, Reilly M
Department of Radiology, Mater Hospital, Dublin, Ireland
Brit J Radiol; 54(642):550 1981

The success of ultrasound in other soft tissue areas has encouraged the study of its potential in breast diagnosis and, although numerous technical advances have contributed to image quality, the diagnostic accuracy of breast ultrasound does not compare favorably with more established techniques, such as Xeromammography. Ultrasound of the breast is most useful as a complementary examination for elucidating problem cases in mammography. The ultrasonic appearance of the breast in 63 patients is described and compared with Xeromammography. Classification of irregularities is by pattern recognition such as (a) shape of the lesion, (b) internal echoes, (c) boundary echoes, (d) posterior and lateral detail, (e) appearance of surrounding tissue. The overall diagnostic accuracy compared well with other reported series. The limiting factors in achieving greater accuracy were discussed. 1) The probes commercially available are not adequately focused for waterbath scanning, resulting in a loss of lateral resolution and a dependence of echo size on beam shape. 2) The swept-gain function, which should compensate for attenuation in the tissue,

can result in a distortion of echo sizes. 3) Much of the shadowing and enhancement signs important for diagnosis are best represented in a linear scan, but the curved surface of the breast causes a refraction artefact. Preliminary studies of this involved simple mathematical models of the breast and a computer program written to simulate or 'mimic' the linear movement of the probe and graph on the CRT. It is apparent that even a small difference in the speeds of propagation of sound in the water-bath and tissue can result in significant contributions of registration error. (no Refs)

17. THE POTENTIAL OF ULTRASOUND IN THE EVALUATION OF BREAST MASSES (MEETING ABSTRACT).

Vlaisavljevic V, Vrecer B, Gorisek B, Drzecnik J
No affiliation given
Excerpta Med Int Congr Ser; 547:115 1981

The authors report about 310 ultrasonic examinations of the breast. Scanning was performed by means of a gray-scale unit or real-time equipment. They studied its applicability in routine diagnoses of breast masses. Echomammography findings are correlated with x-ray mammography, thermography, clinical examination and aspiration biopsy. They concluded that echomammography is superior to thermography in the diagnoses of breast tumors. This method is also superior to x-ray mammography concerning the solid or cystic nature of breast masses. They found no differences in the diagnostic possibilities of visualization between echomammography and x-ray mammography for palpable breast tumors while x-ray mammography is more effective in the detection of nonpalpable tumors. Echomammography has no advantage over x-ray mammography in the visualization of breast tumors in fatty, atrophic breast. Echomammography can be applied as a valuable complementary method to x-ray mammography and it improves its diagnostic accuracy if glandular or dense dysplastic mammographic patterns are present. With this method, the necessity for biopsy can be eliminated in cases of cystic disease. Real-time echomammography is superior to x-ray mammography in detection of nonpalpable cysts in the breast with dysplastic mammographic pattern. This method warrants successful aspiration biopsy of multilocular or multilocalized cysts and indicates the localization for aspiration biopsy. (no Refs)

18. ULTRASOUND MAMMOGRAPHY: DIFFERENTIAL DIAGNOSIS OF BREAST CANCER - A COMPARISON WITH OTHER METHODS (MEETING ABSTRACT).

Hackeloer BJ, Eulenburg R, Huneke B, Duda V, Lauth G, Buchholz R
No affiliation given
Excerpta Med Int Congr Ser; 547:118 1981

One hundred and fifty carcinomata of the breast were examined by ultrasound mammography and compared to (1) clinical examination, (2) thermography, (3) x-ray mammography, (4) cytology, and (5) operative findings and histology. While x-ray mammography was superior in the detection of the total number of carcinomata there were some carcinomata demonstrable by ultrasound and not detectable by x-ray. The smallest carcinoma we were able to demonstrate was 3x4 mm in size. These results indicate that ultrasound cannot be used as a true screening procedure. But there is a significant difference in the demonstration of different tumor types, eg the scirrhous carcinoma was easy to recognize but the solid carcinoma was not. We tried to give a differential diagnosis for different types of cancer using a full description of the typical cancer tissue texture (christmas-tree sign) and indirect, functional signs like 'lateral and middle shadowing'. Ultrasound mammography can be regarded as a new ancillary aid in the differential diagnosis of a malignancy and should be used because of its noninvasiveness as a method of first choice. (no Refs)

19. ULTRASOUND-MAMMOGRAPHY: SPECIAL INDICATIONS (MEETING ABSTRACT).

Eulenburg R, Hackeloer BJ, Duda V, Huneke B, Lauth G, Buchholz R
No affiliation given
Excerpta Med Int Congr Ser; 547:117 1981

We report about 1000 ultrasound examinations on the breast using an immersion-scanner. Apart from the often discussed question about a screening examination for early breast cancer, we discovered that there is a wide field of indications where ultrasound is already important and sometimes superior to x-ray methods: (1) diagnosis of cysts, localization and aid for fine-needle biopsy (with real-time scanner ADR 2130 7 MHz) as well as long-term control of cystic breasts; (2) the dense breast (DY) where x-ray is difficult to interpret; (3) excentric masses (near to the axilla) where xerography often fails; (4) lumpy mass in pregnancy; and (5) lumpy mass in immobile patients; (6) non-puerperal mastitis. Having used ultrasound mammography in our hospital for the past 2 yr we feel that the importance of this technique is increasing even if a screening for early breast cancer is not as yet very successful. But there is an increasing list of indications where ultrasound is helpful and superior and it should be used before performing more invasive techniques. Excellent equipment and very experienced examiners are of great importance. (no Refs)

20. ULTRASOUND MAMMOGRAPHY: THE VALUE OF THIS METHOD FOR BENIGN DISEASES (MEETING ABSTRACT).

Duda V, Huneke B, Eulenburg R, Hackeloer BJ, Lauth G, Buchholz R
No affiliation given
Excerpta Med Int Congr Ser; 547:118 1981

Two hundred benign masses of the breast were examined by using an immersion scanner and a real-time scanner and compared to findings of needle-biopsy (cytology) or operation (histology). In comparison to the results of other diagnostic methods, such as thermography or x-ray mammography, ultrasound was found to be superior. These results confirm the findings of Jellins and Kossoff that ultrasound has a high accuracy in the diagnosis of benign findings. Ultrasound was found to be helpful in: (1) the detection of cysts, the real-time guided puncture, the long-term control; (2) the detection of fibroadenoma in (a) dense breasts, and (b) young patients; (3) the detection of lipoma; (4) the classification of fatty infiltration. The typical structural findings using compound and single scans, and especially for fibroadenoma where x-ray failed in 17% of all cases, will be demonstrated and discussed. (no Refs)

GASTROINTESTINAL TUMORS

21. THE ROLE OF PREOPERATIVE ANGIOGRAPHY IN GASTRIC CANCER.

Sawai K
Dept. Surgery, Kyoto Second Red Cross Hosp., Kamigyo-ku, Kyoto 602, Japan
Nippon Geka Gakkai Zasshi; 82(5):461-468 1981

Celiac, left gastric and common hepatic angiography has been performed in 182 preoperative patients with gastric cancer. The tumor vessel or tumor stain was identified in 176 patients (96.7%). The cancers of these patients were divided into three groups, left side, right side and bilateral, according to the origin of feeding arteries of the cancer. Extension of lymph node metastasis in the three angiographic groups were compared. Cancers fed by the left gastric, short gastric and left gastroepiploic arteries were classified as the left side group. Since the lymph node metastasis was limited to the attendant nodes of the celiac axis and its branches in this group (N2), Appleby's total gastrectomy seems indicated for the group. Cancers fed by the right gastric, gastroduodenal and right gastroepiploic arteries were classified as the right side group. In addition to the extent mentioned above, metastasis into lymph nodes along the proper hepatic artery, behind the surface of the head of the pancreas or around the superior mesenteric artery was found in 15.1% of this group. Extended lymph node dissection should be applied to this group (R3). Cancers fed by arteries of both of the above groups were classified as the bilateral group. Because of extensive lymph node metastasis, the radical operation approach for this group is by no means curative. (22 Refs) (In JPN)

22. USEFULNESS OF ANGIOGRAPHY IN THE CONTROL OF ACUTE MAJOR GASTROINTESTINAL BLEEDING IN THE CANCER PATIENT (MEETING ABSTRACT).

Soo CS, Shivshanker K, Chuang VP, Stroehlein JR
M. D. Anderson Hospital and Tumor Institute, Houston, TX, 77030
Gastroenterology; 80(5,part2):1290 1981

In major acute gastrointestinal (GI) hemorrhage the bleeding site is commonly unifocal. Thus arteriography with selective infusion or embolization may be used to control bleeding when med ical management fails. Twenty-one patients with advanced cancer were evaluated angiographically. All had received chemotherapy within 2 wk of bleeding. At endoscopy the site of bleeding was in the upper GI tract in 14 and in the lower GI tract in 7. The etiology of bleeding was benign in 7 and metastatic foci in 14. The indication of angiography was continued bleeding despite supportive management. In 10/21 patients an active bleeding site was demonstrated at arteriography; all were controlled by selective Gelfoam embolization. The catheter was placed in the most appropriate artery for ia vasopressin infusion according to the sites identified at endoscopy. Bleeding was controlled in nine. Two demonstrated active bleeding at repeat arteriography and were controlled by Gelfoam embolization. After two yr of follow-up 1) nine patients are alive; 2) ten have died from progressive primary neoplasia; 3) two died of recurrent variceal bleeding. Conclusion: 1) GI bleeding from metastatic foci are efficiently controlled by embolization. 2) Endoscopy assists catheter placement for ia infusion when arteriography failed to demonstrate the bleeding site. 3) Angiographic methods prevent exsanguination, but long term survival depends on therapy for primary neoplasm. (no Refs)

23. HEPATIC FOCAL NODULAR HYPERPLASIA: ANGIOGRAPHY, CT, SONOGRAPHY, AND SCINTIGRAPHY.

Rogers JV, Mack LA, Freeny PC, Johnson ML, Sones PJ
(c/o Mack) Dept. Radiology, ZA-65, Harborview Medical Center, Seattle, WA, 98104
AJR; 137(5):983-990 1981

Eleven patients with focal nodular hyperplasia of the liver underwent a combination of radiologic procedures, including sonography, computed tomography (CT), hepatic scintigraphy, and angiography. This paper describes the radiologic findings in this group of patients and reviews the current literature. In the present series, sonography was the most sensitive (100%) method for detection of focal nodular hyperplasia, while CT was able to detect only seven (78%) of nine cases. Arteriographic findings were felt to be characteristic in 9 (82%) of 11 cases. Hepatic scintigraphy demonstrated normal colloid uptake in 6 (55%) of 11 lesions. In this series, an accurate radiologic diagnosis of focal nodular hyperplasia was made in 73% of cases. Hepatic scintigraphy is the pivotal examination. Normal colloid uptake by a focal hepatic mass is virtually diagnostic. However, in the patients in whom the colloid scan shows decreased or absent uptake, angiography may show findings diagnostic of focal nodular hyperplasia in up to 75% of cases, thus avoiding the need for liver biopsy or surgery. (Author abstract) (52 Refs)

24. CONTRIBUTION OF ENDOSCOPIC RETROGRADE CHOLANGIO-PANCREATOGRAPHY (ERCP) IN THE DIAGNOSIS AND THE MANAGEMENT OF PAPILLARY TUMORS (MEETING ABSTRACT).

Toussaint J, Cremer M, Dunham F, De Toeuf J
Cliniques Universitaires de Bruxelles - Hospital ERASME, 808, route de Lennick, 1070 Brussels, Belgium
Gastroentest Endosc; 27(2):142 1981

In our series of 5076 patients studied by ERCP papillary carcinoma is responsible for 3.2% of cholestatic jaundice and represents 14% of 446 pancreatico-biliary tumors. In 57 patients with malignant tumor, jaundice is present in 87% of the cases and was present from 3 days to 1 yr prior to the examination. The purpose of our study is to evaluate the value of ERCP in the diagnosis and the treatment of malignant papillary tumors: the exophytic tumor is well demonstrated by duodenoscopy in 65% of the cases, biospy confirms the diagnosis in 50% of the cases, the papilla of Vater could be cannulated in 91 of the cases, retrograde cholangiography shows dilatation of the common bile duct in 83% of the cases, retrograde pancreatography shows dilatation of the ducts in 69% of the cases. Endoscopic sphincterotomy (ES) which is systemically done since 1976 demonstrates the tumor in 100% of the cases, biopsies of the edges of the ES confirms the diagnosis in all the cases. Endoscopic resection with polypectomy snare is a definitive procedure of benign tumor and is palliative in malignant cases associated with high operative risks or metastasis. Based on this information and on our experience of our 57 cases of papillary malignant tumors we have adopted now the following schema for the management of obstructive papillary tumor: Clinical and biological check-up; ultrasonography; blood ordered and ERCP within the 24 hr of admission; ES followed by placement of a perfused naso-biliary catheter; additional and complementary examinations; follow-up of the biliary drainage with new endoscopic biopsies; and definitive surgical or endoscopical treatment. (no Refs)

GENITOURINARY TUMORS

25. SIGNIFICANCE OF INDIVIDUAL ANGIOGRAPHIC FEATURES IN THE EVALUATION OF THE NATURE OF POORLY VASCULARIZED RENAL PROCESSES. PART II.

Hippeli R, Wolf KJ

Medizinisches Strahleninstitut, Universitat Tubingen, Rontgenweg 11, D-7400 Tubingen, W. Germany

ROEFO; 135(3):275-282 1981

The value of various angiographic features in the evaluation of the benign or malignant nature of poorly vascularized renal processes was assessed in a series of problematic cases consisting of 50 benign and 50 malignant renal lesions. No angiographic sign exclusively characteristic of either benign or malignant renal lesions was found. Dislocation of the renal artery, occlusion of the arcuate and interlobular arteries, lacunar vascularization, and venous collaterals were more frequent in malignant than in benign processes, while dilation of the pyeloureteral artery, inhomogeneous nephrogram, vague boundary between cortex and medulla, vague outer contours, and corkscrew vessels were more frequent in benig n processes. (54 Refs) (In GER)

HEAD AND NECK TUMORS

26. XERORADIOGRAPHY OF THE THYROID.

Kasai N, Tsuya A

Dept. Head and Neck Surgery, Cancer Inst. Hosp., Kami-Ikebukuro, Toshima-ku 170, Tokyo, Japan

Radiology; 141(2):439-442 1981

In a study of 726 patients, xeroradiography of the thyroid using a modified oblique projection was found to be superior to conventional soft-tissue radiography in detecting calcification in thyroid tumors because of edge enhancement. This facilitated a diagnosis of carcinoma in 75% of 68 primary tumors and 55% of 33 recurrent lesions. When other diagnostic criteria were included, the level of accuracy was 85% for primary tumors and 79% for recurrence. Examination with 131I was positive in 57 primary tumors (83%) and 4 recurrences (12%). The authors recommended routine combination of the two methods. (Author abstract) (8 Refs)

MUSCULOSKELETAL TUMORS

27. DIAGNOSIS OF SACRAL NEOPLASMS BY EPIDURAL VENOGRAPHY.

Zeit RM, Cope C

Dept. Radiology, Temple Univ. Sch. Medicine, Philadelphia, PA

AJR; 137(5):1045-1048 1981

Since sacral neoplasm may mimic the clinical picture of spinal disorders such as herniated intervertebral disc, a small percentage of patients referred for epidural venography for evaluation of back pain or muscular weakness will, in fact, have unsuspected sacral neoplasm. Epidural venography provides excellent visualization of the sacral venous plexus and careful examination of these veins should be made in every patient studied. Three cases are presented in which epidural venography established the diagnosis of previously unsuspected sacral neoplasms. (Author abstract) (12 Refs)

RESPIRATORY TUMORS

28. THE GRADE OF MALIGNANCY OF PERIPHERAL SQUAMOUS CELL CARCINOMA OF THE LUNG: IS IT ASSESSABLE FROM RADIOGRAPHICAL ASPECTS?.

Yamashita H, Nagashima Y, Iwama S, Matsuyama Y, Hirama J, Moriyama R, Naritomi T, Hirata T, Uyama M, Akahoshi K, Yamaguchi N, Hirasawa I

Dept. Internal Medicine, Shizuoka Kenritsu Fujimi Hosp., Shimizu-shi, Shizuoka Pref. 424, Japan

Nippon Kyobu Rinsho; 40(5):416-423 1981

Of the squamous cell carcinomas in the peripheral lung, there are two groups, of different malignancy. The chest x-ray films of one group, of relatively low-grade malignancy, show N0 in the TNM classification while the cancer remains small, and only N1 as it grows larger. X-ray films of the other group, of high-grade malignancy, present N2 (or N1) in spite of the small size of the cancer. Cancers of the first group are situated in the peripheral site and show an annual growth rate of 1.5 x. Radiography reveals a smooth outline, positive air bronchogram with little perifocal secondary changes, and pleural indentation. The progressing focus with cavitation shows a poor focus-hilar connection and girder s are easily observed. Cancers of the second groups are situated in the proximal site and show rapid growth. Radiography reveals a concavo-convex outline, perifocal obstruction of bronchial and/or vascular images, secondary changes on the peripheral margin of the focus, and a tendency for hypertrophy of the pleura. Most of the cases with cavitation demonstrate a thin wall, a firm focus-hilar connection, fluid in the cavity, and less detectable girders. (12 Refs) (In JPN)

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COMPUTER ASSISTED TOMOGRAPHY

1. DIFFERENTIAL DIAGNOSIS OF INTRASELLAR TUMORS BY COMPUTED TOMOGRAPHY.

Daniels DL, Williams AL, Thornton RS, Meyer GA, Cusick JF, Haughton VM
Dept. Radiology, Medical Coll. Wisconsin, Milwaukee, WI, 53226
Radiology; 141(3,part1):697-701 1981

The specificity of the computed tomography (CT) diagnosis of intrasellar adenoma has not been studied. We compared the CT findings in intrasellar meningiomas, craniopharyngiomas, aneurysms, and metastases with those of pituitary adenomas. Calcification was a feature of intrasellar meningiomas, aneurysms, and craniopharyngiomas, but not a typical feature of adenomas. Low-density regions r epresenting necrosis or cyst were found in most types of intrasellar tumors. Eccentricity, hyperostosis, and bone destruction were useful sings of aneurysm, meningioma, and metastasis, respectively. Since adenoma cannot always be distinguished from another intrasellar mass, angiography to demonstrate tumor angioarchitecture may be needed to characterize some neoplasms or to confirm an intrasellar aneurysm. (Author abstract) (8 Refs)

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2. RELATIVE VALUE OF COMPUTED TOMOGRAPHY AND HYPOCYCLOIDAL TOMOGRAPHY IN THE DIAGNOSIS OF PITUITARY MICROADENOMA: A RADIO-SURGICAL CORRELATIVE STUDY.

Bonafe A, Sobel D, Manelfe C
Dept. Neuroradiology, Centre Hospitalier Universitaire de Purpan, Toulouse Cedex, France
Neuroradiology; 22(3):133-137 1981

The relative value of a second generation CT scanner and complex motion polytomography are compared in 36 patients undergoing transsphenoidal surgery due to clinical and biological evidence of pituitary hypersecretion. CT findings of focal glandular hypodensity in 17 patients and upward convexity of the sellar contents in 15 patients suggested the presence of a pituitary microadenoma. Complex motion tomographic findings suggesting a microadenoma were found in 21 of 32 cases and included bulging of the sellar floor or localized thinning of the lamina dura. Selective transsphenoidal adenomectomy was performed on 34 of the 36 patients and the preoperative location based on CT scanning data was positively correlated with surgical results in 75% of the cases. When there is a strong clinical suspicion of pituitary hypersecretion both CT and polytomography may suggest the existence and location of a microadenoma. CT should be the radiographic technique of choice since it produces accurate information as to the size and density of the pituitary gland. (Author abstract) (27 Refs)

3. COMPUTED TOMOGRAPHY AND HYPOCYCLOID TOMOGRAPHY IN LESIONS OF THE NOSE, PARANASAL SINUSES AND NASOPHARYNX.

Nehen AM, Illum P, Ratjen E, Illum F, Elbrond O
Dept. Neuroradiology, Univ. Hosp. Aarhus, DK-8000 Aarhus, Denmark
Acta Radiol [Diagn] (Stockh); 22(3A):285-287 1981

In 31 patients with lesions mainly arising from the nose, paranasal sinuses and nasopharynx comparative evaluation of the results of CT and hypocycloid tomography indicated that CT generally gave a better representation of both the bony structures and the soft parts and alone has the capacity to evaluate intracranial extension. CT should first be performed in the transverse axial plane. If abnormalities in relation to horizontal bony structures are demonstrated, the examination should be supplemented by CT in the coronal plane or, if CT scanning in this plane is not possible, by conventional tomography. Enhancement after iv injection of contrast medium does not as a rule seem to add information of di agnostic importance. (Author abstract) (10 Refs)

4. COMPUTED TOMOGRAPHY IN CARCINOMA OF THE LARYNX AND PIRIFORM SINUS.

Sokjer H, Olofsson J
Dept. Radiology, Linkoping Univ. Hosp., S-581 85 Linkoping, Sweden
Clin Otolaryngol; 6(5):335-343 1981

Since the conventional methods of examination do not furnish a complete picture of deep extension of carcinoma of the larynx (CL) and piriform sinus (PS) the purpose of this study was to ascertain whether further information in this respect might be provided by computed tomography (CT). Often the only sign of deep invasion is vocal cord fixation. This study presents the investigation of of 12 patients with primary carcinoma; 10 patients with CL, and 2 with PS. Two patients with CL were treated only by radiotherapy (RT), and eight by a combination of preoperative RT and total laryngectomy (6 patients) or horizontal supraglottic laryngectomy (2 patients). Patients with PS carcinoma were treated by RT followed by laryngectomy and partial pharyngectomy. Results of examinations by CT were assessed based on findings in whole-organ serial sections in the transverse plane in eight patients with CL and two with PS carcinoma. In two patients with CL carcinoma not undergoing operation the findings yielded by CT were compared to the laryngoscopic assessment and the findings at a clinical follow-up after a full course of RT. CT adds valuable information on the deep invasion of the tumor, the spread lateral to the arytenoid cartilage, to the laryngeal framework, and the spread outside the larynx. (15 Refs)

5. COMPUTED TOMOGRAPHY FOR LOCALIZATION OF PARATHYROID ADENOMAS.

Whitley NO, Bohlman M, Connor TB, McCrea ES, Mason GR, Whitley JE
Dept. Diagnostic Radiology, Univ. Maryland Hosp., 22 South Greene St., Baltimore, MD, 21201
J Comput Assist Tomogr; 5(6):812-817 1981

Fourteen consecutive patients with the clinical diagnosis of primary hyperparathyroidism had computed tomography (CT) preoperatively to evaluate the use of CT in localizing parathyroid adenomas. The patients were scanned from above the level of the thyroid cartilage to the bifurcation of the trachea. Computed tomography correctly identified, prospectively, the site of the adenoma in 7 of 14 patients, including one adenoma that was ectopic in location. Nine of these patients also had barium esophagrams, and this study was accurate in only three of the nine. Our study suggests that CT may be beneficial in the preoperative localization of parathyroid adenomas, particularly those in ectopic locations. (Author abstract) (10 Refs)

6. CT DIFFERENTIATION OF SOLITARY FROM DIFFUSE BRONCHIOLOALVEOLAR CARCINOMA.

Metzger RA, Mulhern CB, Arger PH, Coleman BG, Epstein DM, Gefter WB
Dept. Radiology, Hosp. Univ. Pennsylvania, 3400 Spruce St., Philadelphia, PA, 19 104
J Comput Assist Tomogr; 5(6):830-833 1981

The therapy and prognosis of bronchioalveolar carcinoma vary greatly with the solitary versus the diffuse form of the disease. Solitary disease demonstrates a high resectability rate with good long-term prognosis. This contrasts with the rapidly fatal course associated with the diffuse form. To date, categorization of patients into either the solitary or the diffuse form has been based solely on conventional radiography. Multiple authors have reported cases of disease not demonstrated radiographically but discovered at surgery or autopsy. With the superiority of chest computed tomography (CT) for demonstrating parenchymal abnormalities, we propose that preoperative CT may be crucial in the workup of patients with presumed solitary bronchioloalveolar cell carcinoma. Early identification of diffuse disease or confirmation of the presence of solitary disease by CT may allow the institution of proper therapy and better evaluation of patient prognosis. (Author abstract) (12 Refs)

7. THE COMPUTED RADIOGRAPH: A METHOD OF CORRELATING AXIAL TOMOGRAPHIC IMAGES WITH SIMULATION AND PORT FILMS.

Gillin MT, Foley WD, Kline RW, Kun LE
Dept. Radiation Therapy, Milwaukee County Medical Complex, 8700 W. Wisconsin Ave., Milwaukee, WI, 53226
Int J Radiat Oncol Biol Phys; 7(11):1603-1606 1981

The use of computerized axial tomography (CAT) imaging for radiation therapy treatment planning is reported. A digital radiographic imaging device, the computed radiograph, allows the precise definition of the location of each CT image to the cranial-caudad axis of the patient. The definition of target vol is reassessed using the sequence of axial CT images and the computed radiograph, allowing the alteration of treatment field margins in both the lateral and longitudinal directions as needed. A simulator film, the computed radiograph, and two axial images of a patient with lung cancer are presented in illustration. For this patient, the vol of abnormal tissue as defined on the axial images extended beyond the target vol at levels from the central ray to the caudad border; the target vol was then expanded. The computed radiograph is not used to define the treatment vol, but to indicate the location of the axial CT images. Treatment planning can be performed with the aid of the axial images. Since the correlation of the axial tomographic images with the traditional simulator and port films is necessary for the development of CT for treatment planning, the CT radiograph aids substantially in this correlation. (2 Refs)

8. CT SCANNING OF THE BREAST USING A CONVENTIONAL CT SCANNER.

Doust BD, Milbrath JR, Doust VL
Dept. Radiology, Veterans Admin. Hosp., Wood, WI, 53193
CT; 5(4):296-302 1981

Results concerning computed tomography (CT) of the breast performed in 32 patien ts known to have or suspected of having breast masses are reported. The prone position which was used for 25 patients provided superior images that were very similar to the craniocaudal mammogram. Both breasts and both axillae were examined under identical conditions so that asymmetry was readily perceived. The supine position, used for seven patients, was considered more satisfactory for localization of lesions prior to excision, because the patient is in the supine position during surgery. The configuration of the breast in the supine patient rendered the breast images difficult to compare with each other and with the mammograms. Fine calcifications were not well demonstrated by CT, and iv contrast material was not used in this study. Skin thickening, stranding from the mass to the chest wall, and axillary lymphadenopathy were demonstrated by CT. The deepest part of the breast with CT than with xerography. It is suggested that CT may not be suitable for mass screening because the mid-breast radiation dose is probably higher than that for xeromammography. (8 Refs)

9. VALUE OF COMPUTED TOMOGRAPHY IN THE DETECTION AND STAGING OF RECURRENT RECTAL CARCINOMAS.

Moss AA, Thoeni RF, Schnyder P, Margulis AR
Dept. Radiology, Univ. California, San Francisco, CA, 94143
J Comput Assist Tomogr; 5(6):870-874 1981

We studied a series of 39 patients who underwent computed tomography (CT) of the pelvis and abdomen following surgery for adenocarcinoma of the rectum. Based on the CT findings, recurrent rectal carcinoma was classified into one of four stages: Stage I, intraluminal mass without colon wall thickening; Stage II, colon wall thickening (greater than 1 cm) without invasion of adjacent structures; Stage IIIA, thickening of the colon wall with direct invasion of adjacent organs but not the pelvic sidewalls; Stage IIIB, extension of mass to pelvic sidewalls; and Stage IV, distant metastatic disease. All 30 patients with recurrent recta! carcinoma had positive CT scans. Overall accuracy was 95% with 0% false negative and 5% false positive interpretations. Results indicate that CT is an accurate method of detecting and staging recurrent rectal carcinoma and for aiding the selection of appropriate therapy. (Author abstract) (14 Refs)

10. CT APPEARANCE OF THE PELVIS AFTER ABDOMINO-PERINEAL RESECTION FOR RECTAL CARCINOMA.

Lee JK, Stanley RJ, Sagel SS, Levitt RG, McClennan BL
Mallinckrodt Inst. Radiology, Washington Univ. Sch. Medicine, 510 S. Kingshighway, St. Louis, MO, 63110
Radiology; 141(3,part1):737-741 1981

CT scans of the pelvis in 40 patients who had undergone abdomino-perineal resection for advanced rectal carcinoma 2 wk to 24 yr earlier were reviewed to determine whether there was any difference between simple postoperative change and local recurrence. Of 21 patients with no recurrence, th e postoperative bed was clean in 10 and contained minimal streaky densities in 11. In contrast, a globular mass of soft-tissue density greater than or equal to 1.5 cm in diameter was noted near the operative site in 19 patients with recurrence. Factors which may contribute to the disparity between these findings and those of previous investigators are discussed. (Author abstract) (5 Refs)

11. COMPUTED TOMOGRAPHY OF LOCALIZED DILATATION OF THE INTRAHEPATIC BILE DUCTS.

Araki T, Itai Y, Tasaka A
Dept. Radiology, Univ. Tokyo, 3-1, Hongo 7-chome, Bunkyo-ku, Tokyo, Japan
Radiology; 141(3,part1):733-736 1981

Twenty-nine patients showed localized dilatation of the intrahepatic bile ducts on computed tomography, usually unaccompanied by jaundice. Congenital dilatation was diagnosed when associated with a choledochal cyst, while cholangiographic contrast material was helpful in differentiating such dilatation from a simple cyst by showing its communication with the biliary tract when no choledochal cyst was present. Obstructive dilatation was associated with intrahepatic calculi in four cases, hepatoma in nine, cholangioma in five, metastatic tumor in five, and polycystic disease in two. Cholangioma and intrahepatic calculi had a greater tendency to accompany such localized dilatation; in two cases, the dilatation was the only clue to the underlying disorder. (Author abstract) (17 Refs)

12. COMPUTED TOMOGRAPHIC DEMONSTRATION OF A SPONTANEOUS SUBCAPSULAR HEMATOMA DUE TO A SMALL RENAL CELL CARCINOMA.

Hilton S, Bosniak MA, Megibow AJ, Ambos MA
Dept. Radiology, New York Univ. Medical Center, New York, NY, 10016
Radiology; 141(3,part1):743-744 1981

Computed tomography (CT) was able to demonstrate a small renal cell carcinoma as the cause of a spontaneous sub-

capsular hematoma. Angiographic and pathologic correlation were obtained. A review of the causes for nontraumatic renal subcapsular hematoma is included. (Author abstract) (11 Refs)

13. ANGIOMYOLIPOMA: COMPUTED TOMOGRAPHIC-PATHOLOGIC CORRELATION OF 17 CASES.

Sherman JL, Hartman DS, Friedman AC, Madewell JE, Davis CJ, Goldman SM

(c/o Hartman) Dept. Radiologic Pathology, Armed Forces Inst. Pathology, Washington, DC, 20306

AJR; 137(6):1221-1226 1981

The angiomyolipoma is a benign renal tumor composed of fat, smooth muscle, and abnormal blood vessels. The tumor often extends into the perinephric space and often is complicated by intratumoral or perinephric hemorrhage. The CT findings of 17 cases of angiomyolipoma were correlated with their pathologic findings and are described. CT scans usually demonstrate a large fatty mass intermixed with areas of tissue density which may represent nonfatty parts of the tumor or areas of hemorrhage. CT is more sensitive than plain films at detecting the fat within the angiomyolipoma. CT is also useful in identifying pe rinephric extension and hemorrhage. In those angiomyolipomas composed primarily of smooth muscle or in which intratumoral hemorrhage has obscured the fatty part of the tumor, the CT appearance is indistinguishable from other solid renal tumors. (Author abstract) (12 Refs)

14. THE USE OF COMPUTERIZED TOMOGRAPHY TO OBVIATE CELIOTOMY IN RECURRENT CARCINOMA OF THE CERVIX.

Walton LA, McCartney WH, Vesterinen E

Dept. Obstetrics and Gynecology, Univ. North Carolina, Chapel Hill, NC, 27514

Gynecol Oncol; 12(2,part1):166-176 1981

CT (computerized tomography) was incorporated into the evaluation of 40 patients with a presumptive diagnosis of recurrent cervical carcinoma. Laparotomy correlation with CT findings was obtained in 15 patients. CT localization of paraaortic or pelvic sidewall disease contraindicated laparotomy for purposes of exenteration in 13 patients. When CT localized recurrent disease to the central pelvis or parametria (12 patients) the need for laparotomy was individualized on the basis of adjunctive studies. (Author abstract) (10 Refs)

15. THE OBSTRUCTED UTERUS.

Scott WW, Rosenshein NB, Siegelman SS, Sanders RC

Dept. Radiology, Johns Hopkins Hosp., 600 Wolfe St., Baltimore, MD, 21205

Radiology; 141(3,part1):767-770 1981

Eleven patients with an obstructed, fluid-filled uterus, due to carcinoma of the uterus or to its treatment by radiation therapy, were examined with computed tomography (CT) and/or ultrasound. It is important to recognize this abnormality to differentiate it from other causes of pelvic mass and to ensure prompt treatment of pyometra, should it develop. Both CT and ultrasound reliably identified this condition and differentiated it from other pelvic masses. (Author abstract) (5 Refs)

CENTRAL NERVOUS SYSTEM TUMORS

16. MYELOGRAPHY WITH AMIPAQUE IN INFANTS AND CHILDREN.

Schmidt RC, Vogelsang H

Abteilung fur Neuroradiologie, Medizinische Hochschule Hannover, Karl-Wiechert-Allee 9, D-3000 Hannover 61, W. Germany

Radiologe; 21(11):521-526 1981

Results of myelography with the water-soluble contrast medium Amipaque (Metrizamide: AP) in 47 children are presented. Chief indication for the procedure was suspicion of intraspinal tumor or malformation of spinal cord. AP (2.5-10 ml, concentration 170 mg I/ml) was injected with fluoroscopic control. Doses were determined individually in each case. Pathologic myelograms were obtained in 27 cases. Condition detected included meningomyelocele, lipoma, dermatoid tumor, and teratoma. Dysrhaphic disturbances in the cervical and thoracic regions in two cases were traced to spinal cord atrophy. Four extradural and two intramedullary tumors unrelated to malformations were detected. Myelograms using AP were marked by better visualization of fine detail than that obtained with gaseous or oily contrast media. AP allowed demons tration of the spinal cord, subarachnoidal space, nerve roots, and normal and pathological vasculature. Side effects were minimal in children, in contrast to previous results with adults. (37 Refs) (In GER)

BREAST TUMORS

17. REDUCED-DOSE MAGNIFICATION MAMMOGRAPHY.

Bassett LW, Arnold BA, Borger D, Eisenberg HC, Gold RH, Mahn GR, Holland WP

Dept. Radiological Sciences, Univ. California Los Angeles Sch. Medicine, Los Angeles, CA, 90024

Radiology; 141(3,part1):665-670 1981

The authors describe a new reduced-dose magnification mammography system which uses a microfocal-spot/tungsten-target x-ray tube in conjunction with a high-speed, rare-earth film/screen system. Physical measurements of imaging parameters, phantom tests, and limited clinical trials are reported. Although this system is not yet ready for general use, preliminary results show that diagnostic magnification images of breast masses and microcalcifications are feasible with low radiation doses. (Author abstract) (9 Refs)

18. THE DIAGNOSTIC AND THERAPEUTIC VALUE OF BREAST CYST PUNCTURE AND PNEUMOCYSTOGRAPHY.

Tabar L, Pentek Z, Dean PB

Radiologic Clinic, Medical Univ., Pecs, Hungary

Radiology; 141(3,part1):659-663 1981

Out of 53,459 women undergoing mammography, 434 pneumocystographic examinations were performed in 338 patients. Thirteen benign and 13 malignant intracystic tumors were detected, for a frequency of 6.0%. Intracystic cancers comprised 1.3% of all malignant tumors. Neither visual nor cytological examination of cyst fluid was sufficient to detect or rule out cancer, and the authors feel that pneumocystography is the only reliable method. Excision is the preferred therapy, and

histological examination is the definitive method of differentiating benign from malignant tumors. In more than 97% of cases, pneumocystography of simple cysts is therapeutic. Without evidence of intracystic tumor on pneumocystography, cyst removal is unnecessary. The patient can be followed up with mammography, and any recurrent or new cysts can be diagnosed and treated by pneumocystography alone. (Author abstract) (17 Refs)

19. RADIOGRAPHIC SCREENING FOR BREAST CARCINOMA. II. PROGNOSTIC CONSIDERATIONS ON THE BASIS OF A SHORT-TERM FOLLOW-UP.

Andersson I
Dept. Diagnostic Radiology, Univ. Lund, Malmo Allmanna Sjukhus, S-21401 Malmo, Sweden
Acta Radiol [Diagn] (Stockh); 22(3A):227-233 1981

Prognostic markers were analyzed in a randomized screening project for breast carcinoma using mammary radiography as the only screening method. The proportion of small carcinomas (non-invasive carcinoma and invasive at most 10 mm across) was significantly larger among carcinomas detected at screening than that of carcinomas appearing in the control group. Furthermore, the rate of axillary metastasis was lower and the proportion of stage I disease significantly larger. The proportion of highly differentiated tubular carcinoma and intraductal carcinoma in situ was significantly larger in the screened group, while the proportion of less differentiated tubuloductal carcinoma, invasive comedocarcinoma and medullary carcinoma with lymphoid infiltration was larger in the comparison group. The findings strongly indicate that carcinomas found at radiographic screening represent, on the av, an earlier stage compared with carcinomas detected in clinical practice. (Author abstract) (12 Refs)

GASTROINTESTINAL TUMORS

20. VALUE OF X-RAY EXAMINATION IN DIAGNOSIS OF CARCINOMA IN PATIENTS WITH CHRONIC ULCERATIVE COLITIS.

Winter J, Fiegler W
Klinik fur Radiologie-und Nuklearmedizin, Freie Universitat Berlin, Hindenburgdomm 30, D-1000 Berlin 45, W. Germany
ROEFO; 135(4):461-465 1981

Diagnosis of colon cancer in patients with chronic ulcerative colitis is reviewed, with emphasis on the choice of the optimal diagnostic procedure. The incidence of cancer in patients with colitis is noted, and the relationship between duration of the colitis and an increased risk of cancer development is discussed. The pathology of cancer in patients with chronic ulcerative colitis is described with regard to histogenesis, association with dysplasia, and types of epithelial dysplasia. The rate of detection and accurate diagnosis of colon carcinoma through the use of radiologic techniques is examined; differential diagnosis of radiologically detected cancer is described. Indications, difficulties, and value of radiology, colonoscopy, and rectosigmoidoscopy is these types of diagnoses are compared. It is concluded that, since many of the colon carcinomas are not macroscopically identifiable, endoscopy and biopsy are absolute necessities for the early detection of cancer in patients with chronic ulcerative colitis. It is noted that yearly examinations are recommended most frequently. (44 Refs) (In GER)

21. THE CONTRIBUTION OF RADIOLOGY TO POSTOPERATIVE FOLLOW-UP OF PATIENTS WITH COLORECTAL TUMORS.

Hippeli R, Hubener KH, Reifferscheid P, Frommhold W
Medizinisches Strahleninstitut der Universitat, Rontgenweg 11, D-7400 Tubingen, W. Germany
Chirurg; 52(11):722-727 1981

The role of radiology in follow-up of colorectal cancer (CRC) surgery is reviewed. Recurrence of CRC is usually (approx 70% of cases) local, rather than remote. Since local recurrences can be treated by a second, radical procedure, adequate follow-up is necessary for detection of recurrence. Double-contrast enema permits examination of the anastomosis with greater detail and accuracy than other methods. The radiologist must be able to distinguish recurrent tumor from other postoperative developments. These developments include constrictions of the anastomosis, which all but disappear within approx 1 yr. Indications of delayed healing are detectable. Early postoperative examination (within 10-20 days) makes it easier to distinguish malignant from nonmalignant changes in the course of follow-up. Computed tomography (CT) allows accurate control of the presacral space. A combination of CT and conventional radiological examination at appropriate times is recommended. (15 Refs) (In GER)

22. HEPATIC ULTRASONOGRAPHY IN TYPE I GLYCOGEN STORAGE DISEASE (VON GIERKE DISEASE). DETECTION OF HEPATIC ADENOMA AND CARCINOMA.

Grossman H, Ram PC, Coleman RA, Gates G, Rosenberg ER, Bowie JD, Wilkinson RH
Dept. Radiology, Duke Univ. Medical Center, Box 3834, Durham, NC, 27710
Radiology; 141(3,part1):753-756 1981

Ultrasonic characteristics of hepatic adenoma and carcinoma in seven patients with Type I glycogen storage disease (von Gierke disease) are described. Adenomas are frequently found in patients who survive to adolescence and young adulthood. Serial studies showed progression of disease, with presumed transformation of adenoma into carcinoma in one patient. When applicable, ultrasound compared favorably to radionuclide scintigraphy. Hepatic ultrasonography is an accurate, safe, and relatively inexpensive method of follow-up in patients with Type I glycogen storage disease. (Author abstract) (7 Refs)

23. ARTERIOGRAPHY AND PANCREATIC DISEASE.

Ghosn PB, Fontaine A, Roy P, Bourbeau D
(c/o Bourbeau), Hotel-Dieu de Montreal, 3840, rue St-Urbain, Montreal, PQ H2W 1T8, Canada
Can J Surg; 24(6):612-614 1981

In the last 10 yr, 605 celiomesenteric arteriographic examinations were done at Hotel-Dieu de Montreal, including 236 for suspected pancreatic disease. Sixty patients with histologic proof of malignant neoplasm had a positive arteriographic examination while 136 had benign disease of the pancreas and 40 others had extrapancreatic disease. In this series, the sensitivity of arteriography was 88.3% and the specificity 92.6%. In the last 5 yr the sensitivity of superselective arteriography was 100%. These results were better than those obtained with noninvasive techniques such as computerized axial tomography, ultrasonography and duodenography. The authors conclude that arteriography and particularly superselective arteriography is

an excellent method for evaluating patients with suspected pancreatic cancer. (Author abstract) (11 Refs)

24. GASTROINTESTINAL LEIOMYOSARCOMA - UNUSUAL SITES: ESOPHAGUS, COLON, AND PORTA HEPATIS.

Balthazar EJ
Dept. Radiology, New York Univ. Medical Center, 550 First Ave., New York, NY, 10016
Gastrointest Radiol; 6(4):295-303 1981

Six newly proven cases of gastrointestinal leiomyosarcomas (LMS) occurring in unusual locations are described. A general background of gastrointestinal LMS, description and illustr ation of the spectrum of radiographic and angiographic findings of the unusual lesions, discussion of diagnosis and differential diagnosis, and a brief review of the literature are presented. Diagnosis of LMS was made either by histologic examination, documented metastases at surgery, or follow-up examination. Patients were a symptomatic group aged 45-66 yr old, including three women and three men. Tumors were located in the esophagus (1), cecum or colon (4), and porta hepatis (1), and ranged in size from 3 x 4 to 23 x 17 cm. Preoperative diagnosis was complicated by the protean and nonspecific clinical and radiographic features of the tumors. The porta hepatis tumor was hypervascular, but the similar tumors of the colon were only moderately vascular, and the esophageal tumor was avascular. (55 Refs)

GENITOURINARY TUMORS

25. DIFFICULTIES IN DIAGNOSING AND TREATING RENAL ANGIOMYOLIPOMA: REPORT OF THREE CASES AND REVIEW OF THE LITERATURE.

Steinhoff GE, Moors DE
(c/o Moors) Dept. Urology, Ottawa Civic Hosp., 1053 Carling Ave., Ottawa, Ontario K1Y 4E9, Canada
Can J Surg; 24(6):619-621 1981

Renal angiomyolipoma is an uncommon benign tumor that presents diagnostic and therapeutic problems. It may be unilateral or bilateral; in its bilateral form it is usually associated with tuberous sclerosis. As a mass lesion of the kidney, it resembles renal cell carcinoma on pyelography and angiography, but computerized axial tomography and ultrasonography may provide a definitive diagnosis. This benign tumor should be treated conservatively to preserve renal function, but surgical intervention is necessary if renal cell carcinoma cannot be excluded completely. (Author abstract) (33 Refs)

26. ULTRASOUND OF THE PROSTATE. ANALYSIS OF TISSUE TEXTURE AND ABNORMALITIES.

Greenberg M, Neiman HL, Brandt TD, Falkowski W, Carter M
Dept. Radiology, Northwestern Univ. Medical Sch., Northwestern Memorial Hosp., Chicago, IL
Radiology; 141(3,part1):757-762 1981

Thirty-nine patients with benign prostatic hypertrophy, prostatic carcinoma, or prostatitis underwent ultrasonography using a transabdominal suprapubic approach. In both benign hypertrophy and prostatitis, the gland was enlarged and exhibited a homogeneous echo pattern, being hypoechoic in prostatitis and either hypo- or hyperechoic in hypertrophy. Carcinoma was characterized by focal areas of increased or decreased echogenicity with irregular margins. The various sonographic appearances are explained by correlation with the histological findings, and the advantages of the transabdominal approach are discussed. The authors suggest that widespread application of this technique will improve early detection of prostatic carcinoma. (Author abstract) (12 Refs)

27. RESULTS OF LYMPHOGRAPHY IN UROLOGIC CANCER.

Musumeci R
Instituto Nazionale Per Lo Studio E La Cura Dei Tumori, Via Venezian 1, 20133 Milano, Italy
Radiol Diagn (Berl); 22(4):525-528 1981

The results of lymphography (LG) in 981 cases of histologically confirmed tumors of the urinary tract and male genitalia are reported. Renal tumors included 54 adenocarcinomas (AC), 33 Wilm's tumors (WT), and 1 sarcoma. Metastases (MTS) were found in 11 cases of AC and 1 case of WT. Bladder tumors included 170 carcinomas (CC) and 7 sarcomas (SC). MTS were found in 55 cases of CC and 1 case of SC. Prostatic tumors included 53 CC and 5 SC. MTS were found in 28 cases of CC and 1 case of SC. Tumors of the penis included 68 CC and 1 malignant melanoma (MM), of which 19 of CC and 1 MM were metastatic. A total of 542 testicular tumors included 266 seminoma (SM), 272 CC, and 29 non-germinal (NG) tumors. Metastases were found in 41.4% of SM, 58.0% of CC, and 27.6% of NG. Of all cases studied biopsies were obtained in 240 cases. Among these cases LG had an accuracy of 85.8%, a sensitivity of 82.6%, and a specificity of 88.5%. Poorest results were obtained with penile CC. LG was confirmed as useful in all tumor types studied and mandatory for adequate staging and therapy in cases such as testicular and bladder CC. (1 Ref)

28. ANTEGRADE SPERMATIC PHLEBOGRAPHY IN THE DIAGNOSIS OF METASTASES FROM TESTICULAR TUMORS.

Forsberg L, Ekelund L, Mattiasson A, Olsson AM
Dept. Diagnostic Radiology, Univ. Hosp., S-221 85 Lund, Sweden
Acta Radiol [Diagn] (Stockh); 22(3A):255-259 1981

Antegrade spermatic phlebography was performed in 18 patients in connection with orchiectomy because of testicular expanding lesions and was compared with other diagnostic methods. Fifteen of the cases were teratomas or seminomas. In 6 patients metastases were demonstrated at phlebography and later confirmed. In one case no abnormality was found at phlebography, nor at CT, but at lymphography metastases were found in not enlarged lymph nodes. Due to a technical error at phlebography one case was falsely considered abnormal. The technique is described and its use as a screening procedure for metastases is advocated. (Author abstract) (9 Refs)

GYNECOLOGIC TUMORS

29. RADIONUCLIDE LIVER AND BONE SCANNING IN THE EVALUATION OF PATIENTS WITH ENDOMETRIAL CARCINOMA.

Mettler FA, Christie JH, Garcia JF, Baldwin MH, Wicks JD, Bartow SA

Div. Nuclear Medicine, Dept. Radiology, Univ. New Mexico Hosp., Albuquerque, NM, 87131

Radiology; 141(3,part1):777-780 1981

Staging bone scans or skeletal surveys were obtained of 97 patients with endometrial carcinoma. Of the 77 patients with Stage I or II disease, no metastases were identified at staging. Three patients in the entire series demonstrated bony metastases; all of these metastases were detectable by radionuclide bone scan and radiographic bone survey. Eighty-nine patients were examined with radionuclide liver/spleen scanning at the time of staging. Four of the 89 initial scans were interpreted as demonstrating hepatocellular disease, and all four patients had abnormal liver function studies. Only one patient demonstrated a possible hepatic metastasis at initial diagnosis. This patient also had abnormal liver function studies. Based on these results, bone surveys and radionuclide bone scans are not indicated as screening procedures in endometrial carcinoma. It is suggested that screening for liver metastases in patients with endometrial carcinoma is not warranted in patients with normal liver function studies. (Author abstract) (15 Refs)

HEMATOPOIETIC, RETICULOENDOTHELIAL AND LYMPHATIC TUMORS

30. WHOLE BODY BONE SCINTIGRAPHY COMPARED TO CONVENTIONAL RADIOGRAPHY IN DETECTING BONE LESIONS IN MULTIPLE MYELOMA.

Deding A, Ingeberg S, Jorgensen PS

Medical Dept. BN, Aalborg Hosp., DK-9000 Aalborg, Denmark

Dan Med Bull; 28(5):207-209 1981

In a consecutive series of 30 patients with multiple myeloma, whole body scan with 99mTechnetium methylenediphosphonate and radiographic skeletal survey were performed. The skeleton was divided into 29 bone regions; the positive regions, ie, those with increased uptake on scan and typical myelomatous lesions on x-ray, were registered and the results of the two investigations compared. Two hundred and twenty-six bone regions were positive on x-ray and/or scan, 159 (70%) on x-ray only, 26 (12%) on scan only and 41 (18%) on both x-ray and scan. None of the patients had bone lesions which were only demonstrated on scan. Almost all regions with bone pain were positive on both x-ray and scan. The results indicate that whole body bone scintigraphy is considerably less sensitive than conventional radiography in detecting myelomatous bone lesions, and of little use as a screening procedure for determining the extent of bone involvement. (Author abstract) (15 Refs)

MUSCULOSKELETAL TUMORS

31. RADIOLOGICAL BEHAVIOR PATTERNS OF BONE TUMORS.

Galanski M, Friemann J, Roessner A, Schnepper E

Zentrum Radiologie, Med. Hochschule Hannover, Karl-Wiechert-Allee 9, D-3000 Hannover 61, W. Germany

Roentgenblaetter; 34(11):440-445 1981

Radiographic characteristics of bone tumors are reviewed. Radiography provides initial information for diagnosis, including determination of benignity or malignity. Of particular importance are the pattern of bone destruction, tumor localization, and periosteal reaction. Bone destruction may be geographically limited and sharply defined (indicative of benign lesions), of a 'moth-eaten' pattern (indicative of aggressive tumors), or of a tunneling pattern with many small holes (indicative of the most aggressive tumors). The cortex may be intact, enlarged, or penetrated, depending on the aggressiveness o f the lesion. Tumors of low aggressiveness produce at most an even, smooth periosteal bone formation. More aggressive tumors produce lamellar, 'onion skin', or spicule formations. Consideration of tumor characteristics provides the basis for staging and grading . (11 Refs) (In GER)

32. CLINICAL, RADIOLOGICAL AND PATHOLOGICAL STUDY OF EWING'S SARCOMA OF THE LUMBAR SPINE. ROUND CELL SARCOMAS. REPORT ON THREE CASES.

Vacher H, Vacher-Lavenu MC, Sauvegrain J

(c/o Sauvegrain) Service de radiologie, Hopital Necker, 149, rue de Sevres, F 75730 Paris Cedex 15, France

J Radiol; 62(8/9):425-428 1981

Two cases of primary bone condensation type Ewing's sarcoma of a lumbar vertebra are described in children aged 8 and 10 yr, as well as one case of the osteolytic form in a 14-yr-old child. Ewing's sarcoma very rarely occurs in the spine, and the type with bone condensation is almost exclusively of a primary nature. The tumor extends simultaneously into the epidural space and the perispinal planes. Intravenous urography and myelography with metrizamide are therefore essential for evaluating the degree of tumor extension. Computed tomography examinations are also now necessary. Prognosis is bad and current therapeutic possibilities limited. Histological diagnosis is the only means of distinguishing Ewing's sarcoma from other round cell sarcomas in or around the spine. (Author abstract) (12 Refs) (In FRE)

33. ROENTGENOLOGIC ASPECTS OF MALIGNANT FIBROUS HISTIOCYTOMAS OF SOFT TISSUES AND OF BONE.

Turculet V

Vasile Turculet, 8, ch. du Champ d'Anier, 1209 Geneva, Switzerland

J Radiol; 62(8/9):429-436 1981

The histiocyte, macrophage or tissue monocyte is a cell of the mononuclear system. The histiocytes have the abilities to phagocytose by utilizing hydrolytic enzymes they have synthesized, and which can synthesize specific proteins to enhance immune responses. The malignant fibrous histiocytoma is a relatively common neoplasm of the mesenchymal tissues derived from histiocytes capable of wide latitude in the expression of differentiation and pleomorphic appearance. This tumor arises as a primary tumor of soft tissue as well as of bone. Four of 10 cases of malignant fibrous histiocytomas are documented. This

report adds to the understanding of the entity of the tumor in that the diagnosis of malignancy was made using roentgenologic criteria and confirmed by biopsy and by autopsy. The most common locations were of the extremities and extensive local recurrence and metastases are the characteristics. The purpose of this study is to analyze the usefulness the roentgenologic methods in the diagnosis of the malignant histiocytoma: conventional radiography, radionuclide scanning, computed tomography, sonography, xeroradiography and angiography. The differential diagnosis is reported. An algorithmic roentgenologic approach for t he evaluation of the malignant fibrous histiocytoma is proposed. (Author abstract) (29 Refs) (In FRE)

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PHILIP C. HANAWALT Stanford University	*Cellular Responses to Damaged DNA*	#VK03 54 min.
CHARLES HEIDELBERGER University of Southern California	*Mutagenesis and Oncogenic Transformation of Mouse Embryo Cells*	#VK04 54 min.
FRED RAPP Milton S. Hershey Medical Center	*The Interaction of Herpesviruses and Host Cells Leading to Latency or Transformation*	#VK05 52 min.
	Panel Discussion	#VK06 31 min.

MECHANISMS OF METASTASIS

ISAIAH FIDLER Frederick Cancer Research Center	*The Heterogeneous Nature of Cancer Metastasis and Implications for Therapy*	#VB01 47 min.
GEORGE POSTE Smith, Kline and French Laboratories	*Phenotypic Analysis of Metastatic Cell Populations*	#VB02 42 min.
LANCE LIOTTA National Cancer Institute	*Tumor Cell Invasion of Basement Membranes and Extracellular Matrices*	#VB03 33 min.
EVERETT SUGARBAKER Miami Cancer Institute	*Some Clinical Characteristics of Metastasis in Man*	#VB04 41 min.

AUTOMATED CYTOLOGY

Part One: Principles and Techniques	#VB05 56 min.
Part Two: Biological Applications	#VB06 52 min.

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Diagnostic Radiology

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MAY, 1982

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COMPUTER ASSISTED TOMOGRAPHY

1. INITIAL FINDINGS IN THE COMPUTER-AIDED DIAGNOSIS OF CEREBRAL TUMOURS USING CT SCAN RESULTS.

Wills K, DuBoulay GH, Teather D
Sch. Mathematics, Leicester Polytechnic, Leicester, England
Br J Radiol; 54(647):948-952 1981

This paper describes the initial findings of computer-assisted diagnosis of cerebral tumors using Bayers' Theorem and CT scans. For various sets of signs, tables of accuracy and reliability have been constructed, and a computer versus radiologist analysis for three types of tumor has been made. Based only on the results of CT scans, the computer has produced diagnoses relatively quickly, and overall these are of reasonable accuracy when compared with the radiologists' reports. the worst results occurre d in the prediction of meningiomas, the reasons for which will be examined in subsequent work. (Author abstract) (10 Refs)

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2. COMPUTED TOMOGRAPHY OF PEDIATRIC INFRATENTORIAL BRAIN TUMORS.

Bilaniuk LT, Zimmerman RA, Schut L, Bruce DA
Neuroradiology Section, Hosp. Univ. Pennsylvania, Philadelphia, PA, 19104
J Neuroradiol; 8(3):229-242 1981

Computed tomography (CT) was used in the diagnosis of 141 cases of infratentorial tumors in children. Typical CT findings were characterized for each tumor type. Brain stem gliomas were the most frequently occurring tumors (32) and typically displaced the fourth ventricle (FV) posteriorly, demonstrated decreased density, and showed rare calcification and slight partial contrast enhancement (CE). Medulloblastomas (25) expanded or compressed the FV, demonstrated increased density, and showed infrequent (13%) calcification and marked uniform CE. Cerebellar astrocytomas (24) of both the solid and cystic types displaced the FV anteriorly or laterally, demonstrated decreased density, and showed infrequent calcification and some CE depending on the type. Ependymomas (8) expanded or partially or totally obliterated the FV, demonstrated isodensity, and showed frequent (50%) calcification with nonuniform, slight to moderate CE. (19 Refs) (In FRE)

3. COMPUTED TOMOGRAPHY IN PATIENTS WITH HOMONYMOUS VISUAL FIELD DEFECTS- A. CLINICO-RADIOLOGIC CORRELATION.

Kattah JC, Dennis P, Kolsky MP, Schellinger D, Cohan SL
Dept. Neurology, Georgetown Univ. Sch. Medicine, 3800 Reservoir Road, Washington, DC, 20007
Comput Tomogr; 5(4):301-312 1981

The contribution of computed tomography (CT) in the work-up of post chiasmal lesions is described. CT scans were obtained for 39 consecutive patients who presented with homonymous visual field defects. Six patients with retrogeniculate homonymous field loss had neoplasms. Four patients had metastasis to one occipital lobe and two patients had gliomas involving the optic radiations. Visual blurring mimicking an acute vascular episode was the presenting symptom in most patients. Primary tumor sites in patients with metastases included lung, esophagus, and breast. In most cases, the enhanced CT scan showed well-defined areas of low density associated with mass effect. No hemorrhage or calcifications were found. After injection of contrast, uniform areas of enhancement, ring enhancement surrounding a low density area, and lesions characterized by diffuse enhancement containing cyst-like low density foci were observed. Evidence of mid-line shift was seen in only one patient. CT was useful in outlining size and location of the lesions and contributed to proper treatment. (19 Refs)

4. COMPUTED TOMOGRAPHY OF THE ORBIT AND JUXTASELLAR AREA IN CHILDREN.

Post MJ
Dept. Radiology and Neurological Surgery, Univ. Miami Sch. Medicine, P.O. Box 01 6960, Miami, FL, 33101
J Neuroradiol; 8(3):171-194 1981

Computed tomography (CT) was used to detect inflammations, trauma, pseudotumors, and tumors in 21 children. Orbital tumors included a dermoid cyst, fibrohistiocytoma, lymphangioma, retinoblastoma, and bilateral optic nerve gliomas in a patient with von Recklinghausen's disease. Orbital and/or intracranial tumors included two cases of optic glioma associated with neurofibromatosis, and optic glioma. Intracranial tumors included cystic craniopharyngioma, and a hematoma associated with a pituitary adenoma. A small cell sarcoma with secondary orbital and intracranial extension was detected in a 12-yr-old girl who presented with a mass in the right neck. CT is highly recommended in the diagnosis of orbital and juxtasellar lesions because of its sensitive density discrimination and ability to provide direct visualization of the optic nerve, globe, and extraocular muscles. Since visual loss and/or ophthalmoplegia, which were presenting signs in the reported cases, can be symptoms of both intracranial and orbital lesions, localization of ophthalmological lesions and a purely clinical basis is considered almost impossible. (32 Refs) (In FRE)

5. LACRIMAL GLAND TUMORS: THE ROLE OF CT AND CONVENTIONAL RADIOLOGY.

Lloyd GA
Moorfields Eye Hosp., City Road, London EC1V 2PD, England
Br J Radiol; 54(648):1034-1038 1981

The x-ray features of 66 lacrimal gland tumors, comprising 32 benign pleomorphic adenomas, 24 carcinomas and 10 lymphomas, are reviewed. The role of radiology in the management of these patients is discussed. Although lacrimal gland tumors present no unique radiological appearances, the diagnosis and pathological type may be suggested by a combination of conventional radiography and CT scan. It is important to distinguish the pleomorphic adenoma clinically and radiologically from other lesions of the lacrimal gland, since this tumor must be excised in toto. Incisional biopsy or partial removal may result in a disastrous recurrence with seeding into bone and soft tissue. X-ray signs of malignancy in lacrimal gland tumors include invasion and sclerosis of the adjacent bone of the lacrimal fossa, calcification in the tumor and extension outside the lacrimal gland area shown on CT scan. The pre-operative diagnosis of malignancy was improved from 42% to 73% by CT. Indentation or enlargement of the lacrimal fossa was seen in 80% of benign pleomorphic adenomas. Although nonspecific, this sign in a patient with a painless lacrimal gland swelling of over 12 mo duration, without radiological evidence of malignancy, is strongly indicative of a benign tumor. (Author abstract) (4 Refs)

6. COMPUTED TOMOGRAPHY OF THE ABNORMAL THYMUS.

Baron RL, Lee JK, Sagel SS, Levitt RG
Dept. Radiology, Hosp. Univ. Pennsylvania, 3400 Spruce St., Philadelphia, PA, 19 104
Radiology; 142(1):127-134 1982

Computed tomography (CT) should be the imaging method of choice following plain chest radiographs when a suspected thymic abnormality requires further evaluation. Based upon a 6-yr experience, including the evaluation of 25 patients with thymic pathology, CT was found useful in suggesting or excluding a diagnosis of thymoma and in distinguishing thymic hyperplasia from thymoma in patients with myasthenia gravis. The thickness of the thymic lobes determined by CT was found to be a more accurate indicator of infiltrative disease (thymic hyperplasia and lymphoma) than the width. CT was helpful in differentiating benign thymic cysts from solid tumors, and in defining the extent of a thymic neoplasm. On occasion, CT may suggest the specific histologic nature of a thymic lesion. (Author abstract) (25 Refs)

7. THE VALUE OF COMPUTED TOMOGRAPHY IN THE DIAGNOSIS AND MANAGEMENT OF PEDIATRIC MEDIASTINAL ABNORMALITIES.

Siegel MJ, Sagel SS, Reed K

Edward Mallinckrodt Inst. Radiology, Washington Univ. Sch. Medicine, 5101 South Kingshighway Blvd., St. Louis, MO, 73110

Radiology; 142(1):149-155 1982

The utility of computed tomography (CT) in evaluation of mediastinal abnormalities was assessed in 23 pediatric patients. By comparison with standard chest radiography, CT provided additional diagnostic information in 82% of the patients. In 65%, the CT findings contributed to a change in clinical management. CT was most useful in documenting a benign process (near-water-density mass or a normal vascular or soft-tissue structure) and in demonstrating the full extent of a malignant tumor. (Author abstract) (7 Refs)

8. CT DIAGNOSIS OF TUMOR THROMBUS IN THE INFERIOR VENA CAVA: AVOIDING THE FALSE-POSITIVE DIAGNOSIS.

Glazer GM, Callen PW, Parker JJ

(c/o Callen) Dept. Radiology, Univ. California Sch. Medicine, San Francisco, CA, 94143

AJR; 137(6):1265-1267 1981

Potential limitations of computed tomographic scanning in evaluating the inferior vena cava tumor thrombus and cases of a middle-aged female patient and a 6-yr-old patient are presented. Angiography and sonography should also be performed to assure that false-positive results are minimized. (7 Refs)

9. ESOPHAGEAL CANCER EXTENSION. DIAGNOSTIC CONTRIBUTION AND EFFECTS ON THERAPY OF COMPUTED TOMOGRAPHY. REPORT ON 40 CASES.

Coulomb M, Lebas JF, Sarrazin R, Geindre M

Departement Universitaire de Radiologie du C.H.U. de Grenoble, F38700 La Tronche, France

J Radiol; 62(10):475-487 1981

Based on a homogeneous series of 40 cases of thoracic or abdominal esophageal cancer, of which 23 had been confirmed by operation, the authors analyze the contribution of the CT scan to the diagnosis of the extension of the cancer, and evaluation the effects on therapy of this technique. Computed tomography supplies much more precise and complete details of possible cancer extension than any other pre-operative investigation. Conducted after radiological and endoscopic examination of the esophagus, it supplies rapid, perfectly readable, irreplaceable information on local, regional, and metastatic spread of the cancer. This only slightly aggressive examination enables evaluation of the size of the tumor and its direct relationships, effective exploration of the mediastinal and celiac glands regions, and detection of possible pleural, pulmonary, or hepatic metastases. Its role in the decision to operate is a considerable one: true assessment of local, regional, or metastatic extension assists the surgeon in his choice of either curative or palliative therapy. Better still, it enables a route of approach to be decided as a function of data concerning possible extension, as well as the best surgical tactic. As a support for radiotherapy or chemotherapy for this type of cancer, computed tomography greatly assists follow-up supervision. (Author abstract) (26 Refs) (In FRE)

10. ULTRASONOGRAPHY AND COMPUTED TOMOGRAPHY IN THE EVALUATION OF BILIARY TRACT DISEASE.

Schneider M, Rubenstein WA, Auh YH, Kazam E

No affiliation given

Major Probl Clin Surg; 16:19-60 1982

Sonography and computed tomography (CT) of the biliary tract and their use in diagnosis of diseases of the gallbladder (GB) and bile ducts (BD) are reviewed. Sonographic findings are described for normal GB, gallstones, biliary sludge, fixed GB lesions (adenomas, polyps, small tumors of connective tissue of the GB wall, hyperplastic cholecytosis), thickening of the GB wall, GB carcinoma, nonvisualization of the GB lumen due to contracted GB with multiple stones, fibrosis, carcinoma obliterating the GB lumen, and GB empyema. Disadvantages of GB CT include the use of ionizing radiation, the lack of readily available sections in multiple planes, and the relative insensitivity of CT to changes in the consistency of bile. CT findings for normal GB, GB wall thickening, carcinoma, and empyema of the GB and associated abscesses are described. The role of cholecystosonography in GB imaging is discussed. Sonography of the common and intrahepatic BD is discussed. Sonographic criteria for diagnosis of common BD diseases, including stones, tumors strictures, inflammatory masses, dilatation, wall thickening, proximally obstructing lesions, and choledochal cysts, are presented. Sonographic demonstration of dilated intrahepatic ducts can confirm dilation of common ducts, indicate common duct obstruction or proximal obstruction at the porta hepatis, identify stones and cystadenomas, and preoperatively indicate the presence of Caroli's disease. CT findings for diseases of the common and intrahepatic BD are presented. The role of ultrasound and CT in suspe cted diseases of the BD is discussed. (110 Refs)

11. COMPUTED TOMOGRAPHY IN THE LOCALIZATION OF ALDOSTERONE-SECRETING ADRENAL ADENOMAS.

Meek DR, Duncan JG, McAreavey D

Dept. Radiology, Royal Infirmary, Glasgow G4 OSF, Scotland

Br J Radiol; 54(648):1039-1043 1981

Computed tomography (CT) has been shown to detect both adrenal glands in 88.5% of upper abdominal examinations and can visualize at least one gland in 96.5% of patients. However, in examinations carried out specifically to visualize the adrenals, the glands were located in 98% of cases. This technique was used in 18 patients with primary aldosteronism to localize aldosterone-secreting adrenal tumors and to distinguish these from non-adenomas (bilateral adrenal hyperplasia). The results were compared with quadric analysis, a statistical technique used to predict the likely surgical outcome. In seven patients the CT results were verified by operation (6 adenomas, 1 adrenal hypertrophy). However, in one further patient a large adenoma (20 mm in diameter) which had not been predicted by CT scanning was found at operation. In the remaining 10 patients who have been medically treated, results concordant with quadric analysis were obtained in 8 cases. We would suggest that CT scanning should be the initial investigation for the pre-operative localization of adenomas but further comparative studies are required. (Author abstract) (26 Refs)

12. COMPARISON OF LYMPHOGRAPHIC AND COMPUTED TOMOGRAPHIC STUDIES OF THE RETROPERITONEUM IN CASES OF TESTICULAR TUMORS.

Schmidt F, Schulz HG, Pirlich W, Greul G
Radiologische Klink und Poliklinik, Karl-Marx-Universitat, Liebigstrasse 20a, DDR-7010 Leipzig, E. Germany
Radiol Diagn (Berl); 22(4):500-504 1981

Results of lymphographic and computed tomographic studies in 41 patients with testicular tumors were compared. Cases included 13 seminomas, 19 teratocarcinomas, 3 embryonic carcinomas, 3 chorioepitheliomas, 2 benign tumors, and 1 tuberculosis. A total of 43 lymphographies (LG) and 46 computed tomograms (CT) were performed. LG and CT findings agreed in 35 cases, including 11 positive and 24 negative cases. In 18 cases in which histological examination was performed, CT had a sensitivity of 86% and a specificity of 92%. In the same cases LG had a sensitivity of 72% and a specificity of 92%. Combination of both methods produced a sensitivity of 100% and a specificity of 92%. LG had the advantage of allowing differential diagnosis of pathologic changes in normal-sized lymph nodes. CT had the advantage of allowing demonstration of areas not demonstrable with LG and of extension of pathologic lymph nodes. The value of CT and LG in combination was conformed. (25 Refs) (In GER)

13. THE ROLE OF ABDOMINAL COMPUTER TOMOGRAPHY IN LYMPHOMA FOLLOWING TREATMENT.

Blackledge G, Mamtora H, Crowther D, Isherwood I, Best JJ
CRC Dept. Medical Oncology, Manchester Univ. and Christie Hosp. and Holt Radium Inst., Wilmslow Road, Manchester M20 9BX, England
Br J Radiol; 54(647):955-960 1981

Two hundred and six patients with biopsy-proven lymphoma, 74 with Hodgkin's disease and 132 with non-Hodgkin's lymphoma had abdominal computed tomography for assessment of remission status (108 patients) or for investigation of relapse (98 patients). In 43 patients with diffuse large cell lymphomas scanned at a time of apparent complete remission CT was abnormal in 21. Sixteen of these patients have relapsed and died. Only one patient has relapsed in the group who have normal CT scans. This difference was significant ($p = 0.00001$). This difference was not seen in nodular lymphomas. There were very few patients with Hodgkin's disease in whom the CT scan was abnormal and there is a suggestion that many abnormalities following treatment may represent inactive Hodgkin's disease or fibrosis only. CT played a major role in diagnosing the full extent of relapse in both non-Hodgkin's lymphoma and Hodgkin's disease. Over 50% of the abnormal sites detected by CT would not have been shown by any other non-invasive investigation. Five patients with treated Hodgkin's disease who had 'B' symptoms only suggesting relapse were all shown by CT to have extensive intra-abdominal disease. (Author abstract) (20 Refs)

BREAST TUMORS

14. RADIOGRAPHIC SCREENING FOR BREAST CARCINOMA III. APPEARANCE OF CARCINOMA AND NUMBER OF PROJECTIONS TO BE USED AT SCREENING.

Andersson I
Dept. Diagnostic Radiology, Univ. Lund, Malmo Allmanna Sjukhus, S-21401 Malmo, Sweden
Acta Radiol [Diagn] (Stockh); 22(4):407-420 1981

The films of 117 patients with mammary carcinoma detected at population screening were reviewed. Sixteen per cent (19) of the women proved to have non-invasive and 43% (50) small invasive carcinomas (diameter less than or equal to 10 mm). Calcifications were the dominanting abnormality in 95% of the non-invasive carcinomas, while a tumor mass was the most frequent abnormality in small invasive carcinomas. It was found that the appearance of small tumors may vary considerably from one projection to another and also on films in one and the same projection. Thus, approximately 20% of small invasive carcinomas were either not visible or equivocal in one of the two projections used at screening. The corresponding figure for large invasive carcinomas (diameter greater than 10 mm) was approximately 7%. It is concluded that films in two projections, preferably the craniocaudal and oblique, should be obtained at screening. (Author abstract) (37 Refs)

15. PREOPERATIVE ROENTGENOGRAPHICALLY GUIDED PERCUTANEOUS LOCALIZATION OF OCCULT BREAST LESIONS. THREE-YEAR EXPERIENCE WITH 180 PATIENTS AND DESCRIPTION OF A METHOD.

Meyer JE, Kopans DB
Dept. Radiology, Massachusetts General Hosp., Boston, MA, 02114
Arch Surg; 117(1):65-68 1982

The identification of a suspicious occult breast lesion with mammography should, in most instances, result in roentgenographically guided localization followed by surgical excision. Over a three-yr period, we performed 180 roentgenographically guided preoperative localizations for occult breast lesions, 32% (57/180) of which were malignant. Of the total, there were 85 masses and 95 clustered microcalcifications. We prefer to use a modified hookwire for lesion localization. (Author abstract) (14 Refs)

16. BREAST PATTERN AS A RISK FOR DEVELOPMENT OF CANCER.

Weich J, Adler OB
(c/o Adler) Dept. Diagnostic Radiology, Rambam Medical Center, POB 9602, 31096 Haifa, Israel
Isr J Med Sci; 17(9/10):854-858 1981

Between the yr 1974-79, 10,400 mammographies were performed in 8,566 women, and 442 prevalent breast cancers were detected. Of these mammographies, 8,400 were performed in 6,556 women for diagnostic purposes, and 2,000 were part of a clinical-radiological screening study. The mammograms were classified according to the patterns described by Wolfe. One-third of our cancer patients presented with the 'high risk' P2 and DY pattern; the same pattern was present in 27% of our normal control group. We conclude that patient management and follow-up cannot be based on mammographic pattern alone for this would miss two-thirds of breast cancer cases. The radiologist interpreting mammographies should neverthe-

less be especially alert in the presence of the high risk pattern. (Author abstract) (5 Refs)

17. MAMMOGRAPHIC PARENCHYMAL PATTERNS: RISK INDICATOR FOR BREAST CANCER?

Tabar L, Dean PB
Dept. Mammography, Falun Central Hosp., 791 82 Falun, Sweden
JAMA; 247(2):185-189 1982

Mammographic parenchymal patterns, originally presented as a new risk factor for breast cancer, have been prospectively studied in a large (27,157 examinations) consecutive screening population. Although there is a significantly higher risk of breast cancer in the so-called dysplastic breasts (P2 and DY pattern groups), the classification is of little practical value, as more than 72% of the cancers in the prevalent population were found in the so-called low-risk breasts (N1 and P1 pattern groups). A similar trend occurred at repeated screening of younger women, in which most of the 'incident' cancers were found in the 'low-risk' breasts. These patterns should not be used to influence patient management or screening programs. (Author abstract) (20 Refs)

18. THE ROLE OF MAMMOGRAPHY IN EVALUATING PATIENTS WITH EARLY CARCINOMA OF THE BREAST FOR TYLECTOMY AND RADIATION THERAPY.

Gefter WB, Friedman AK, Goodman RL
Dept. Radiology, Hosp. Univ. Pennsylvania, 3400 Spruce St., Philadelphia, PA, 19 104
Radiology; 142(1):77-80 1982

The value of mammography in treatment planning for early breast cancer following excisional biopsy was studied in 38 patients. One-third of the post-biopsy mammograms yielded information useful for therapy or follow-up, specifically the presence or absence of gross residual tumor [11] and detection of occult lesions in the opposite breast or axillary nodes [3]. They also proved valuable as base-line studies, since scars seen on post-therapy mammograms may simulate new or recurrent tumor [3]. Approx half [21] of the post-biopsy studies were nondiagnostic because of dense parenchyma [14] or biopsy-related distortion [7]. Four were considered falsely positive for residual tumor. These results indicate that mammography can contribute significantly to the management of patients undergoing tylectomy and primary radiotherapy for breast cancer. (Author abstract) (21 Refs)

19. MAMMOGRAPHIC EVALUATION OF THE CHANGES IN THE BREAST AFTER RADIOTHERAPY FOR BREAST CARCINOMA. PART I: STUDY OF BREAST TUMOR REGRESSION AFTER RADIOTHERAPY.

Moczko W, Luczak I, Ramlau C, Moczko J, Simon E
Instytut Radiologii, AM w Poznaniu, ul. Szkolna 8/12, 61-833 Poznan, Poland
Pol Przegl Radiol; 45(4):193-197 1981

Twenty-eight 36-72-yr-old women with inoperable breast cancer were submitted to radiotherapy, and quantitative changes in the tumor vol as a result of the treatment were evaluated by mammography. Mammography was performed before, in the middle, immediately, as well as 2 and 4 mo after the radiotherapy. Control examinations were than performed at 4-mo intervals. Significant reduction of the tumor vol was found after radiotherapy in all patients. Three phases were discerned in the course of the tumor regression. The first phase was characterized by rapid vol reduction during treatment and, in half of the patients, for up to 8 wk after completion of the radiotherapy. The second phase was that of slowly progressing decrease in the tumor vol for up to 8 mo from the beginning of the treatment. The third, late regression phase 9-22 mo after radiotherapy, was characterized by nonuniform changes in tumor size with persistence of residual tumor or secondary enlargement, indicative of stabilization of the process or of local recurrence. There was a discrepancy between the clinical and mammographic evaluation of the tumor regression after radiotherapy. There was no correlation between the mode and rate of tumor regression and the histological type. (5 Refs) (In POL)

20. RADIOGRAPHIC EVALUATION OF THERAPEUTIC RESPONSE IN BONY METASTASES OF BREAST CANCER.

Libshitz HI, Hortobagyi GN
Dept. Diagnostic Radiology, Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., 6723 Bertner Ave., Houston, TX, 77030
Skeletal Radiol; 7(3):159-165 1981

Radiographic appearance of response to chemotherapy was investigated in 50 previously untreated breast cancer patients (29-69 yr old) with known metastases in bone. Chemotherapy programs consisted of 5-fluorouracil, adriamycin, cyclophosphamide and methotrexate, or equivalents. Pretreatment evaluation of radiographs revealed osseous metastases in 44 classified as follows: lytic (26),, mixed (11), blastic (4), and fracture (3). Lytic metastases showed response in a definite sequence: sclerotic rim, filling in, uniformly blastic, and uniform fading. Disease progression was indicated by increase in the size of lytic areas or destruction in previously responding areas. Mixed lesions initially show a rim of sclerosis. Further response is similar to lytic lesions. Healing in blastic lesions, while difficult to evaluate, was indicated by fading of the blastic response to a normal bony density and trabecular pattern. Disease progression was indicated by increasing areas of blastic change or the development of destruction within a blastic lesion. Sixteen of 26 patients with lytic metastases showed no response, stayed stable less than 12 mo, or responded less than 12 mo to chemotherapy. Ten patients remained stable or responded greater than 12 mo. Twelve of 15 patients with mixed or blastic metastases responded to therapy of 12 mo or longer. Evaluation of metastases in bone should include bone scan, radiographs, and clinical history. (15 Refs)

21. COMPARISON OF ION CHAMBER AND TLD DOSIMETRY IN MAMMOGRAPHY.

Stanton L, Day JL, Brattelli SD, Lightfoot DA, Vince MA, Stanton RE
Dept. Radiation Therapy and Nuclear Medicine, Hahnemann Medical Coll. and Hosp., Philadelphia, PA, 19102
Med Phys; 8(6):792-798 1981

An ionization chamber method has been developed to measure exposure vs depth in a uniform BR 12 'average breast' phantom. It employs a Memorial mammography chamber for exit exposure measurements; resulting data is then corrected for backscatter as well as for the exceptionally thin window of this chamber. A careful comparison has then been made with relative exposure vs depth curves obtained using TLD at several mammography beam qualities, for identical exposure factors and SSD values. Use of a correction for residual and background TL signals significantly improved agreement between TLD and ion chamber curves in the 28 to 35 kVp/0.03 mm Mo range of beam quality. Agreement was within +-5% for the Mo target tube, but TLD readings were 4%-8% higher

than ion chamber values for the W/Mo target tube. At xeromammography energies (45 kVp/1.6 mm Al), corrected TLD curve readings were 6% higher at depth than ion chamber curve values. TLD measurements with 28 to 35 kVp/0.03 mm Mo beams tend to underestimate dosage to the midbreast parenchyma. For example, in a 5 cm 'average breast', the underestimation ranges from 2%-10% for corrected, 1 0%-16% for uncorrected TLD readings. (Author abstract) (13 Refs)

ENDOCRINE TUMORS

22. ROENTGENOLOGIC DIAGNOSIS OF PRIMARY CORTICOTROPIN-PRODUCING CARCINOID TUMORS OF THE MEDIASTINUM.

Brown LR, Aughenbaugh GL, Wick MR, Baker BA, Salassa RM
Mayo Clinic, Rochester, MN, 55905
Radiology; 142(1):143-148 1982

A study was undertaken of five patients with Cushing syndrome due to ACTH production by thymic carcinoid tumor (primary mediastinal APUDomas), including two recent patients examined by computed tomography (CT) of the chest. Plain roentgenography of the chest initially failed to detect tumor in four of the five patients, while CT of the chest yielded definitive diagnostic information in both patients in whom it was employed. For one of these patients, a mediastinal tumor could be seen retrospectively on plain roentgenograms of the chest, although it had been missed on the first examination. One of the tumors appeared to be partially calcified on CT scan, a finding not previously reported. Blastic osseous metastasis, which is common when malignant carcinoid tumors spread to bone, was seen in one patient. Our data suggest that in patients with suspected ectopic ACTH production, CT scanning of the mediastinum should be performed early in order to avoid delay in diagnosis of an ACTH-secreting carcinoid tumor of the mediastinum. (Author abstract) (20 Refs)

GASTROINTESTINAL TUMORS

23. ENDOSCOPIC RETROGRADE CHOLANGIOGRAPHY USING A BALLOON CATHETER - PARTICULARLY ITS SIGNIFICANCE IN HEPATIC DUCT INVESTIGATION.

Ikeda S, Tanaka M, Yoshimoto H, Itoh H
First Dept. Surgery, Kyushu Univ. Faculty of Medicine, 3-1-1 Umaderi, Higashi-ku, Fukuoka 812, Japan
I To Cho; 16(11):1259-1265 1981

An end-hole balloon catheter (7 French size) was used in endoscopic retrograde cholangiography (ERC) to visualize hepatic ducts in seven patients (3 men, 4 women; 34-69 yr old). Prior to balloon catheter type ERC, visualization of the hepatic ducts was not possible with the aid of standard ERC due to overflow of injected contrast medium (30% Na diatrizoate) through patulous sphincters in two patients, through the endoscopic sphincterotomy orifice in three, through the sphincteroplasty in one, and through a cholecystoduodenostomy in one. Balloon catheter type ERC clearly visualized presence of hepatic stones in three of the patients, hepatic branches in three, and obstruction of the left hepatic duct associated with rigidity and irregularity of the bile duct wall in one. The obstruction of the left hepatic duct was found during laparotomy to be due to carcinoma. Indications for balloon catheter type ERC included cases of hepatic lesions (eg, hepatic stones and carcinoma) in which there was a loose or incompetent sphincter of Oddi, choledochoduodenal fistula, previous surgical sphincteroplasty, previous endoscopic sphincterotomy, or previ ous bilioenteric anastomosis. (7 Refs) (In JPN)

24. PATHOPHYSIOLOGICAL AND CLINICAL ASPECTS OF CHOLESTASIS.

Niederau C, Strohmeyer G
Medizinische Klinik und Poliklinik D, Universitat Dusseldorf, Moorenstrasse 5, D-4000 Dusseldorf, W. Germany
Leber Magen Darm; 11(5):201-214 1981

The pathophysiological and clinical aspects of cholestasis are reviewed. Extrahepatic obstructive cholestasis can be due to obstruction of the extrahepatic bile ducts by tumors (bile duct carcinoma, benign papilloma, and tumors of the stomach and pancreas). The possible causes of intrahepatic obstructive cholestasis include bile duct carcinoma, hepatocellular carcinoma and metastases. These tumors may obstruct the common hepatic duct or both hepatic ducts. Patients with Hodgkin's disease and other malignant lymphomas can develop unobstructive intrahepatic cholestasis. Endoscopy, sonography and/or computed tomography are necessary for the diagnosis of cholestasis caused by tumors. Transhepatic cholangiography is most effective and reliable in the diagnosis of cholestasis due to carcinoma of the bifurcation of the hepatic duct. (101 Refs) (In GER)

GENITOURINARY TUMORS

25. DIAGNOSTIC VALUE OF CAVOGRAPHY.

Harder T
Radiolog. Univ.-Klinik, 5300 Bonn Venusberg, W. Germany
Roentgenblaetter; 34(12):474-481 1981

The diagnostic position of cavography (CG) is reviewed based on literature and experiences at one clinic. Use of CG has been reduced 75% since the introduction of computer tomography (CT) and ultrasonography (US). CG is indicated as a supplement to CT and US for (1) preoperative clarification of anomalies of the vena cava, (2) preoperative clarification of vascular involvement of malignant tumors, (3) localization and size determination of thromboses, and (4) studying venous obstruction due to retroperitoneal fibrosis. Tumors confirmed by US, CT, and arteriography accounted for 77% of a series of cases in which CG was performed. Of these tumors, 51% were hypernephromas and 40% were retroperitoneal lymph node metastases of malignant testicular tumors, for which aortic lymphadenectomy was planned. Tumor-related signs in CG include sharp and indistinct impressions, displacement, or stenosis/occlusion of the vena cava, and the presence of collateral vessels. CG is indicated to optimize preparation for surgical treatment of retroperitoneal tumors. Development of noninvasive diagnostic techniques is likely to further reduce the value of CG in the future. (24 Refs) (In GER)

GYNECOLOGIC TUMORS

26. THE IMPACT OF LYMPH NODE STATUS ON SURVIVAL IN CERVICAL CARCINOMA.

Hammond JA, Herson J, Freedman RS, Hamberger AD, Wharton JT, Wallace S, Rutledge FN
Ontario Cancer Foundation, Victoria Hosp., 375 South St., London, Ontario, Canada
Int J Radiat Oncol Biol Phys; 7(12):1713-1718 1981

The relationship between results of lymphangiography (LAG) and other parameters and survival time was studied retrospectively in 215 patients with cervical carcinoma (CC) in Stages IB-IIIB. LAG results were classified as positive (LAG+) or negative (LAG-). All patients received external radiotherapy using a standard 15 x 15 cm pelvic field or, in patients with metastatic lymph nodes, an extended field. Internal radium implants were used when possible. Patients with large pelvic tumors who were LAG- were randomized to receive standard-field or extended-field external irradiation. Correlation of staging and LAG factors indicated three risk groups: good risk patients were Stage IIA or IIB and LAG- and av disease-free survival time (DFS) was greater than 92 Intermediate risk patients were Stage IIB and LAG+, or Stage IIIA or B and LAG-; av DFS was 31 mo. Poor risk patients were Stage IIIA or B and LAG+; av DFS was 11 mo. Among all three risk groups DFS was longer for those patients receiving radium implants. DFS was increased in LAG+ patients but not LAG- patients by the use of an extended radiation field. The 2-yr failure rate was 69.0% for LAG+ patients and 31.3% for LAG- patients. Persistent disease was found in 22.7% of LAG+ patients and 10.7% of LAG- patients. LAG status correlated with stage of disease. Results indicate that LAG is useful for defining high-risk patients with cervical carcinoma. (9 Refs)

MUSCULOSKELETAL TUMORS

27. RADIOLOGIC AND PATHOLOGIC ANALYSIS OF SOLITARY BONE LESIONS. PART III: MATRIX PATTERNS.

Sweet DE, Madewell JE, Ragsdale BD
Dept. Orthopedic Pathology, Armed Forces Inst. Pathology, Washington, DC, 20306
Radiol Clin North Am; 19(4):785-814 1981

The mineralized matrix patterns demonstrated in clinical radiographs of primary bone neoplasms and related disorders help to predict matrices, and have diagnostic significance. These radiographic patterns may yield important clues as to the true nature of a lesion, especially when only limited biopsy material is available from extraosseous or nonrepresentative areas. Therefore, in the evaluation of bone tumors and tumor-like conditions, it is of extreme importance to correlate the histologic findings with the radiographic examination and to know precisely the location at which the biopsy material was obtained. Patterns of mineralization may be the only remnants of a pre-existing lesion that has undergone sarcomatous transformation, such as in bone infarcts, enchondromas or osteochondromas. The pre-eminent item of importance for patient care is the diagnosis of a malignant process. However, failure to appreciate antecedent benign conditions will not contribute toward a better understanding of tumor biology or a determination of those benign lesions that warrant removal or close clinical follow-up. Integration of matrix data with knowledge of the anatomic location of a lesion, the character of its margins, and the periosteal reaction patterns it produces permits prognostication and often, specific diagnosis. (Author abstract) (32 Refs)

28. DIAPHYSEAL OSTEOSARCOMA.

Haworth JM, Watt I, Park WM, Roylance J
Dept. Radiology, Bristol Royal Infirmary, Bristol, England
Br J Radiol; 54(647):932-938 1981

Fifteen cases of diaphyseal osteosarcomas were found in a review of 157 cases of long bone osteosarcoma (9.5%) and two further examples were added. The clinical and histological features of the diaphyseal osteosarcomas were indistinguishable from those of the commoner juxta metaphyseal osteosarcomas. The radiological features, however, fell into four distinct patterns: Group I had the classical appearance of a conventional osteosarcoma; Group II showed dense cortical sclerosis with bony expansion but no soft tissue swelling or break of the cortex at presentation; Group III presented with a pathological fracture through a purely osteolytic lesion; Group IV usually had the classical appearances of an osteosarcoma in the diaphysis but had, in addition, dense separate sclerotic lesions which were proximal to the tumor in the humerus and distal to it in the femur. The importance of these four groups lies in the quite distinct differential diagnosis which each presents. (Author abstract) (7 Refs)

RESPIRATORY TUMORS

29. COMPARISON OF PLAIN RADIOGRAPHY, CONVENTIONAL TOMOGRAPHY, AND COMPUTED TOMOGRAPHY IN DETECTING INTRATHORACIC LYMPH NODE METASTASES FROM LUNG CARCINOMA.

Osborn DR, Korobkin M, Ravin CE, Putman CE, Wolfe WG, Sealy WC, Young WG, Breiman R, Heaston D, Ram P, Halber M
Dept. Radiology, Duke Univ. Medical Center, Box 3808, Durham, NC, 27710
Radiology; 142(1):157-161 1982

Forty-two patients with T2 bronchogenic carcinoma were evaluated with plain radiography, conventional 55 C oblique hilar and anteroposterior mediastinal tomography, and computed tomography (CT) to compare their accuracy in assessing mediastinal and hilar nodal metastases. Definitive staging was achieved by thoracotomy and histopathological evaluation of resected specimens. All modalities demonstrated about the same accuracy; however, in the 25 patients with hilar and/or mediastinal lymphadenopathy, CT of the mediastinum was more sensitive but not more specific than the other two and conventional tomography was no more accurate than CT for hilar evaluation. Overall, no technique was accurate enough for routine staging; their value may lie in directing biopsy or in treatment planning in patients with inoperable disease. (Author abstract) (28 Refs)

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COMPUTER ASSISTED TOMOGRAPHY

1. VALUE OF HIGH CONTRAST MEDIUM DOSE IN BRAIN CT.

Raininko R, Majurin ML, Virtama P, Kangasniemi P
Dept. Radiology, Univ. Central Hosp. Turku, 20520 Turku, 52, Finland
J Comput Assist Tomogr; 6(1):54-57 1982

Fifty-five patients with brain lesions were examined by computed tomography (CT) after two doses of contrast medium: a bolus injection of 65% meglumine diatrizoate, 1.5 ml/kg, in combination with an infusion of 250 ml meglumine iodamide containing 110 mg I/ml. The studies were usually performed 2 days apart and were analyzed by three radiologists. In 25 patients, one or more of the radiologists changed the diagnosis or the number or size of the lesions when the two scans were observed separately. In three patients, the primary tumor or metastases were seen in the study performed after the higher dose only, and, in two other patients having cerebral metastases, a greater number of metastases were detected in the high dose study. The lower dose containing 15 to 31 g iodine (306 mg iodine/kg) seems to be inadequate in CT of the brain. (Author abstract) (12 Refs)

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2. CLINICAL APPLICATION OF HIGH RESOLUTION COMPUTED TOMOGRAPHY OF TEMPORAL BONE DISEASES.

Kanzaki J
Dept. Otolaryngology, Sch. Medicine, Keio Univ., Tokyo, Japan
Jibi Inkoka; 53(11):993-1001 1981

Using CT/T 8800 with high spatial resolution, target imaging of the various temporal bone diseases was performed. Coronal and axial scans were made. Target imaging is an effective means of studying patients with cholesteatomas, semicircular canal fistula, diseases of the internal auditory canal (acoustic neuroma, or stenosis) and inner ear anomaly (hypoplasia, or distension of the vestibulum). The results of the comparison of CT and polytomography of the temporal bone were as follows: (1) In most cases, the pathological process was demonstrated with CT scans better than or same as with polytomograms. (2) The radiation dose of CT scan is low. (3) The axial images of the temporal bone were easily obtained with CT. (4) CT is more effective than polytomography in the diagnosis and evaluation of the temporal bone involved by tumor and cholesteatoma, especially attic cholesteatoma. (5) In cases with temporal bone fracture, acoustic neuroma or other intracranial diseases, contrast-enhanced CT can be done. (Author abstract) (9 Refs) (In JPN)

3. COMPUTED TOMOGRAPHY OF ORBITAL TUMORS, INCLUDING LATE-GENERATION SCANNING TECHNIQUES.

Forbes GS, Earnest F, Waller RR
Dept. Diagnostic Radiology, Mayo Clinic, Rochester, MN, 55905
Radiology; 142(2):387-394 1982

The role of computed tomography (CT) in the detection and diagnosis of orbital tumors at the Mayo Clinic is reviewed. Special techniques of late-generation scanners, including multiplane reformatted imaging, off-axis projections, high-resolution retrospective analysis, and thin-section scanning, have been evaluated in various ways for their clinical application in 42 recent cases. The overall series involved 133 proved orbital tumors. The detection rate and information obtained established CT as the method of choice for diagnosis of tumors of the orbit. (Author abstract) (33 Refs)

4. COMPUTED TOMOGRAPHY AND ULTRASOUND IN THE EVALUATION OF ORBITAL INFECTION AND PSEUDOTUMOR.

Harr DL, Quencer RM, Abrams GW
Dept. Radiology, Univ. Miami Sch. Medicine, Miami, FL, 33101
Radiology; 142(2):395-401 1982

Twenty patients with orbital inflammatory processes were examined with high-resolution computed tomography (CT) and 14 of them were also evaluated with ultrasound (US). In eight cases of orbital infection, six abscesses were localized by CT; US contributed no significant additional information. The 12 cases of orbital pseudotumor could be classified into four forms by CT. US added specificity to the CT findings, especially in the tumefactive form. In all eight cases of pseudotumor where US was performed, low-reflective echoes were characteristically seen. In addition, edema in the retrobulbar fascia (4 cases) was continuous with fluid along the optic nerve sheath (3 cases) and muscle enlargement was identified in six cases. These US features were found to be important in the differential diagnosis of intra-orbital masses. (Author abstract) (16 Refs)

5. INVASIVE THYMOMAS: DIAGNOSIS AND EVALUATION BY COMPUTED TOMOGRAPHY.

Zerhouni EA, Scott WW, Baker RR, Wharam MD, Siegelman SS
(c/o Siegelman) Dept. Radiology and Radiological Science, Johns Hopkins Hosp., Baltimore, MD, 21205
J Comput Assist Tomogr; 6(1):92-100 1982

Ten cases of invasive thymoma examined by computed tomography (CT) and by conventional chest roentgenography are reviewed. In each case, CT showed at least one significant abnormality that was not disclosed by conventional techniques. Computed tomography was especially effective in detecting pleural implants above the diaphragm, pericardial tumor, mediastinal pleural involvement, and invasion of pulmonary parenchyma. Computed tomography assists in the management of patients with invasive thymoma by providing the most reliable assessment of the extent of disease. This information is useful in directing surgical intervention, providing radiotherapy treatment, evaluating treatment response, and monitoring for recurrence of disease. (Author abstract) (13 Refs)

6. THYMOMA DETECTION BY MEDIASTINAL CT: PATIENTS WITH MYASTHENIA GRAVIS.

Moore AV, Korobkin M, Powers B, Olanow W, Ravin CE, Putman CE, Breiman RS, Ram PC
Dept. Radiology, Duke Univ. Medical Center, Durham, NC, 27710
AJR; 138(2):217-222 1982

The precise role of computed tomography (CT) in evaluating the mediastinum for thymomas in patients with myasthenia gravis is not defined. The only published CT accuracy assessment reports a false-positive rate of 90%. Mediastinal CT was performed in 23 consecutive unselected patients with myasthenia gravis who underwent thymectomy independent of their neurologic status or diagnostic imaging results. Four patients had discrete thymomas; all were detected by CT. Conventional chest radiography and tomography were positive in three and falsely negative in one. In the remaining 19 patients with a normal or atrophic thymus or microscopic hyperplasia, CT was falsely positive in two; conventional chest radiography and tomography were falsely positive in three. Mediastinal CT is an accurate technique for evaluation of thymoma in patients with myasthenia gravis. (Author abstract) (13 Refs)

7. NUCLEAR MAGNETIC RESONANCE IMAGING OF THE LIVER: INITIAL EXPERIENCE.

Doyle FH, Pennock JM, Banks LM, McDonnell MJ, Bydder GM, Steiner RE, Young IR, Clarke GJ, Pasmore T, Gilderdale DJ
(c/o Steiner) Dept. Diagnostic Radiology, Royal Postgraduate Medical Sch., Hammersmith Hosp., Ducane Road, London W12 OHS, England
AJR; 138(2):193-200 1982

Nuclear magnetic resonance (NMR) scans of the liver were obtained in 12 normal volunteers and 32 patients using a whole-body machine developed by Thorn-EMI Ltd, and the results were compared with x-ray computed tomography (CT). Two types of NMR scan, saturation-recovery and inversion-recovery, were performed in order to obtain values for the spin-lattice relaxation time, T1. Although the saturation-recovery scans show little soft-tissue detail, the inversion-recovery scans demonstrated the interlobar fissure, hepatic veins, portal veins, bile ducts, and gallbladder. In comparison with CT (Siemens Somatom 2), both types of NMR scan showed some blurring due to respiratory movement but much less linear artifact across the liver from the air-fluid interface in the stomach. Focal disease within the liver was demonstrated by both CT

and NMR, although an area of focal atrophy and another of hepatic infarction were only recognized with NMR. In diffuse disease the pattern varied. In steatosis CT was virtually diagnostic, while NMR showed no specific features. In hemochromatosis, hepatitis, eight cases of cirrhosis, and one of Wilson disease, both techniques showed abnormalities of varying specificity. In two cases of cirrhosis and one of primary biliary cirrhosis, only the NMR scan was abnormal. Nuclear magnetic resonance images are now sufficiently anatomically detailed to permit serious comparisons with technically advanced computed tomography. The information revealed is fundamentally different and can be expected to have some diagnostic utility. (Author abstract) (9 Refs)

8. CYSTIC NEOPLASMS OF THE PANCREAS: CT AND SONOGRAPHY.

Wolfman NT, Ramquist NA, Karstaedt N, Hopkins MB
Dept. Radiology, Bowman Gray Sch. Medicine, Winston-Salem, NC, 27103
AJR; 138(1):37-41 1982

Cystic neoplasms of the pancreas are pathologically divided into macrocystic adenomas and microcystic adenomas, the former are considered a premalignant lesion and the latter without malignant potential. Five cases of cystic neoplasms are presented and the sonographic and/or computed tomographic features of microcystic and macrocystic adenoma are compared. A specific diagnosis can at times be suggested based on the computed tomography and sonography findings. In the proper clinical setting microcystic adenoma should be considered in the differential diagnosis of a pancreatic mass seen on sonography and computed tomography. Preoperative biopsy with appropriate pathologic staining can be performed and aid in directing appropriate therapy. (Author abstract) (12 Refs)

9. LOCALIZATION OF FUNCTIONAL ADRENAL TUMORS BY COMPUTED TOMOGRAPHY AND VENOUS SAMPLING.

Dunnick NR, Doppman JL, Gill JR, Strott CA, Keiser HR, Brennan MF
Dept. Radiology, Duke Univ. Medical Center, Durham, NC
Radiology; 142(2):429-433 1982

Fifty-eight patients with functional lesions of the adrenal gland underwent radiographic evaluation. Twenty-eight patients had primary aldosteronism (Conn syndrome), 20 had Cushing syndrome, and 10 had pheochromocytoma. Computed tomography (CT) correctly identified adrenal tumors in 11 (61%) of 18 patients with aldosteronomas, 6 of 6 patients with benign cortisol-producing adrenal tumors, and 5 (83%) of 6 patients with pheochromocytomas. No false-positive diagnoses were encountered among patients with adrenal adenomas. Bilateral adrenal hyperplasia appeared on CT scans as normal or prominent adrenal glands with a normal configuration; however, CT was not able to exclude the presence of small adenomas. Adrenal venous sampling was correct in each case, and reliably distinguished adrenal tumors from hyperplasia. Recurrent pheochromocytomas were the most difficult to localize on CT due to the surgical changes in the region of the adrenals and the frequent extra-adrenal locations. (Author abstract) (22 Refs)

10. EVALUATION OF RENAL MASSES CONSIDERED INDETERMINATE ON COMPUTED TOMOGRAPHY.

Balfe DM, McClennan BL, Stanley RJ, Weyman PJ, Sagel SS
Mallinckrodt Inst. Radiology, Washington Univ. Sch. Med., 510 S. Kinghighway, St. Louis, MO, 63110
Radiology; 142(2):421-428 1982

Of 815 renal masses studied by computed tomography (CT), 60 did not fit the criteria for cyst or neoplasm and thus were called indeterminate. When artifacts were present, the likely diagnosis was a simple cyst; when no artifacts were present to explain atypical features in cyst-like masses, further investigation was necessary. Angiography was useful in only 16%, while ultrasound combined with cyst aspiration was diagnostic in 84%. All solid lesions required surgical investigation. Ultrasound with or without aspiration is recommended for all cyst-like renal masses thought to be indeterminate on CT. (Author abstract) (28 Refs)

11. COMPUTED TOMOGRAPHY AS A SUPPLEMENT TO UROGRAPHY IN THE EVALUATION OF SUSPECTED NEUROBLASTOMA.

Siegel MJ, Sagel SS
Mallinckrodt Inst. Radiology, Washington Univ. Sch. Medicine, 510 South Kingshighway Blvd., St. Louis, MO, 63110
Radiology; 142(2):435-438 1982

Eleven children in whom a retroperitoneal neuroblastoma was suspected on the basis of plain radiographic or urographic findings underwent computed tomography (CT). CT identified and localized a neurogenic tumor in eight patients. Calcifications were demonstrated by CT in six lesions, but by urography in only four. One neuroblastoma detected by CT was not seen on the urogram; in five patients greater extent of the tumor was defined by CT than by conventional radiologic procedures. In three patients CT excluded a neuroblastoma, but diagnosed other disorders (hepatic tumor, pancreatitis, and retrocaval ureter). Our results confirm that CT is a simple and accurate method for diagnosis, delineation of extent, or exclusion of neuroblastoma. (Author abstract) (6 Refs)

12. COMPUTED TOMOGRAPHIC EVALUATION OF CARCINOMA OF THE CERVIX.

Whitley NO, Brenner DE, Francis A, Villa Santa U, Aisner J, Wiernik PH, Whitley J
Dept. Diagnostic Radiology, Univ. Maryland Hosp., 22 South Greene St., Baltimore, MD, 21201
Radiology; 142(2):439-446 1982

To assess the accuracy of computed tomography (CT) in staging advanced carcinoma of the cervix, 18 staging evaluations were performed in 16 patients with locally advanced (FIGO Stage IB-IVA) cervical carcinoma. CT staging results were compared with the results of clinical staging and postoperative staging. CT was accurate in 12/18 (66%) cases, clinical staging was accurate in 10/18 (55%) cases, and clinical staging with cystoscopy was accurate in 14/18 (78%) cases. CT staging failed to detect microscopic pelvic side-wall involvement and bladder involvement when there was no contrast material in the bladder. In the detection of para-aortic lymph node involvement by tumor, there were 12 true-negative, 4 true-positive, 1 false-positive, and 1 false-negative study (sensitivity = 80%, specificity = 92%). It is concluded that CT is equal in accuracy to other clinical staging techniques and offers the advantage of visualizing the tumor, which allows for more accurate determination of radiation portals. (Author abstract) (17 Refs)

CENTRAL NERVOUS SYSTEM TUMORS

13. DIGITAL SUBTRACTION ANGIOGRAPHY OF THE INTRACRANIAL VASCULAR SYSTEM: COMPARATIVE STUDY IN 55 PATIENTS.

Modic MT, Weinstein MA, Chilcote WA, Pavlicek W, Duchesneau PM, Furlan AJ, Little JR
Dept. Diagnostic Radiology, Cleveland Clinic Foundation, 9500 Euclid Ave., Cleveland, OH, 44106
AJR; 138(2):299-306 1982

Intracranial vessels were examined in 55 patients with both conventional selective catheterization and intravenous digital subtraction angiography using a prototype digital subtraction unit. In 65% of the patients, the digital subtraction angiogram was diagnostic, but the overall quality was inferior to conventional selective angiography. In 22%, the digital subtraction angiogram provided diagnostic information, but there was a significant chance of misinterpreting the results of the study. In 13% of cases, the subtraction angiogram was not diagnostic. As now developed, digital subtract ion angiography can replace conventional cerebral angiography for preoperative evaluation of the juxtasellar carotid artery prior to transphenoidal surgery because the large intracerebral vessels are consistently well visualized with digital subtraction. The dural sinuses are better visualized with digital subtraction than with conventional angiography because with digital subtraction all the vessels of the brain are opacified, whereas with conventional angiography, there is a mixture of opacified and unopacified blood in the sinuses. Combined with computed tomography, digital subtraction angiography can replace conventional angiography for determining the preoperative extent and vascularity of tumors. It can be used for postoperative evaluation of aneurysms, arteriovenous malformations, extracranial to intracranial bypasses, and after the embolization of vascular lesions. (Author abstract) (9 Refs)

BREAST TUMORS

14. FURTHER EVALUATION BY ULTRASOUND OF MAMMOGRAPHICALLY DETERMINED BREAST DYSPLASIA.

Frazier TG, Cole-Beuglet C, Kurtz AB, Goldberg BB, Ryan SM
John S. Sharpe Res. Foundation, Bryn Mawr Hosp., Bryn Mawr, PA, 19010
J Surg Oncol; 19(2):69-70 1982

Evaluation of 135 consecutive patients was made for breast masses by the same surgeon and the patients were subsequently referred for ultrasound mammography of the breast afer xeromammography revealed a 'dysplastic' (DY) pattern only, with no evidence of malignancy. Three patients had carcinoma of the breast detected by ultrasound mammography that had been missed by xeromammography. Two of the three cancers were similarly diagnosed by fine-needle aspiration cytology. All patients with a normal ultrasound examination have now been followed for a minimum of 15 mo without evidence of developing breast cancer. This study confirms the importance of using additional diagnostic modalities for evaluating patients with dysplastic breasts and strongly suggests the value of ultrasound mammography in this group of patients. (Author abstract) (5 Refs)

GASTROINTESTINAL TUMORS

15. SUBMUCOSAL ESOPHAGOGRAPHY FOR ESOPHAGEAL CANCER.

Osugi H, Hamanaka Y, Sakai K
Osaka City Univ. Medical Sch., Osaka 545, Japan
World J Surg; 5(5):703-706 1981

The use of Myodil injections to form an x-ray image of a lesion in the submucosal layer is described. Rabbits with VX2 carcinoma were studied and a later clinical trial examined patients with esophageal cancer. After successful tests with rabbits, submucosal esophagography was performed on 43 patients before radiotherapy was undertaken. The morphological features of an intraparietal lesion were visualized clearly on ultrasoft radiograms, and a classification of esophagograms was undertaken. The ability to determine tumor length and invasion of the adventitia may aid selection of therapy. Patients with Type III or IV esophagograms, who are likely to have cancer invasion of the adventitia, receive preoperative radiation and bleomycin treatment. Type I and II patients, who are thought to be free of invasion of the adventitia, are also subjected to esophagectomy but without preoperative radiation. (3 Refs)

GENITOURINARY TUMORS

16. TRANSRECTAL ULTRASONOGRAPHY OF THE PROSTATE.

Chapelon JY, Fourcade C, Cathignol D, Devonec M, Dubernard JM, Sarkissian J, Kamel G
(c/o Dubernard) Service d'Urologie, Hopital Edouard Herriot, Pavillon V, F 69374 Lyon Cedex 2, France
Nouv Presse Med; 10(42):3491-3492 1981

A French instrumentation for transrectal ultrasonography of the prostate by means of a rectal probe containing a rotative transducer is presented. Typical ultrasonographic images are shown. Accurate information on the size of the gland is obtained by this method and adenomas can easily be distinguished from adenocarcinomas. The method might eventually be of considerable value for the screening of asymptomatic subjects and early detection of prostatic cancer. (Author abstract) (6 Refs) (In FRE)

17. SCROTAL ECHOTOMOGRAPHY: PRELIMINARY RESULTS OF A STUDY OF 75 CASES.

Constancis P, Arvis G
Service d'Urologie, Hopital St. Antoine, 184 Fg St. Antoine, 75012 Paris, France
Contracept Fertil Sex (Paris); 10(1):23-26 1982

Results of scrotal pathology and echotomography (EC) studies in 75 patients are described. EC was useful in providing topographic and prognostic information in 11 patients with testicular cancer. Testicular neoplasms produce images with a uniform tone which differ in density from those of nonneoplastic tissue. EC permits the measurement of tumor size and the determination of tumor extension. EC is useful in the differential diagnosis of epididymal and testicular neoplasms. Echostructural characteristics of testicular neoplasms correlate well with prognosis. Seminomas produces an image of dense tonality with homogeneous echos and have a good prognosis in comparison with choriocarcinomas and dysembryomas which

exhibit a heterogeneous echo-structure and are associated with a poor prognosis. Abdominal EC can be used to determine the presence of lymphatic and liver metastases. EC was also used to diagnose epididymal cysts (5 cases), hydroceles (16), trauma to the scrotal pouch (3), sterility (13), spermatic cord torsion (4), and inflammatory disorders of the scrotal pouch (32). (no Refs) (In FRE)

HEAD AND NECK TUMORS

18. TOMOGRAPHY OF THE INTERNAL ACOUSTIC MEATUS. A CRITICAL EVALUATION OF THE RADIOLOGICAL APPEARANCE IN NORMALS AND IN PATIENTS WITH ACOUSTIC NEUROMAS.

Thomsen J, Reiter S, Borum P, Tos M, Jensen J
Univ. ENT Dept., Gentofte Hosp., DK-2900 Hellerup, Denmark
J Laryngol Otol; 95(12):1191-1204 1981

The radiological appearance of the internal acoustic meatus, obtained by tomogra phy of the temporal bone, is presented for 115 patients with normal inner-ear function. These patients served as normal controls, and their tomograms are compared with those obtained in 48 patients who were initially suspected of having acoustic neuromas but in whom Pantopaque cisternography was negative. These are also compared with the findings obtained in 59 patients with surgically-verified acoustic neuromas. In normal persons the size of the vertical diameter of the meatus on the two sides, as measured by tomography, differed in only a few cases by more than 1 mm. The results obtained in patients who were suspected of having a neuroma, but in whom Pantopaque cisternography had excluded such a diagnosis, coincided completely with the results found in the normal group, and a difference of more than 1 mm between the right and left sides is therefore indicative of a pathological process in the internal acoustic meatus. A normal meatus does not exclude the presence of a tumor, since 10% of patients with neuromas have identical meatus. No evidence of radiological destruction was found, either in the normal material or in the group of patients suspected of having a neuroma. Destruction of the bone surrounding the meatus must therefore be regarded as highly suggestive of the presence of a tumor, but lack of destruction does not exclude a tumor. Tomography of the temporal bone should be applied routinely in the search for acoustic neuromas, in patients with unilateral acoustic or vestibular complaints. The evaluation of the tomograms, however, should be performed by a few, specially interested radiologists. (Author abstract) (15 Refs)

19. ULTRASONIC INVESTIGATIONS OF TUMORS IN THE AREA OF THE ORAL FLOOR AND TONGUE AND OF CERVICAL LYMPH NODE METASTASES CONFIRMED BY COMPUTER TOMOGRAPHY.

Hauenstein H, Rothe F, Steinkamp B
Klinik fur Kiefer- und Gesichtschirurgie, Hufelandstrasse 55, D-4300 Essen, W. Germany
Dtsch Zahnaerztl Z; 36(11):746-751 1981

Thirty-four patients with T-3 tumors of the tongue and floor of the mouth and lymph node metastases diagnosed by palpation or computer tomography (CT) were examined for verification by computerized ultrasonography (CS). CS images were recorded with considerable loss of information on Polaroid film. Examinations of the entire mouth and neck region were performed on each patient by at least two investigators. CS permitted differentiation of structures not distinguishable by CT. Particularly well-defined were vascular structures, which were visible well into the periphery. Lymph nodes were demonstrated with great accuracy: cystic decomposition and central necroses were visible down to a diameter of 4 mm. Size, form, and delineation of solid lymph nodes as well as the relationship of nodes to surrounding tissue were clearly depicted. Visualization of the body of the tongue was difficult because of air spaces in t he oral cavity. CS detected possibly tumorous structures in six patients that were not detected by palpation or CT. Dynamic movements were well-depicted. CS had the advantage over CT of allowing free choice of image planes. Results indicate that CS is valuable for providing supplemental diagnostic information, but that CS does not replace other methods. (20 Refs) (In GER)

20. DIFFERENTIAL DIAGNOSTIC ASPECTS OF CLASSIFICATION OF OSSEOUS METASTASES IN X-RAYS OF THE JAW.

Duker J, Otten JE, Schilli W
Klinik und Poliklinik fur Zahn-, Mund- und Kieferkrankheiten, Universitat Freiburg i. Br., Hugstetter Strasse 55, D-7800 Freiburg i. Br., W. Germany
Dtsch Zahnaerztl Z; 36(11):755-759 1981

Radiological characteristics for differential diagnosis of osseous metastases of the jaw (OMJ) are reviewed, and specific case examples are presented. Diagnosis of OMJ is often difficult because OMJ may occur before the primary tumor is evident, and because symptoms may be confused with nonmalignant conditions. OMJ occur more frequently in the mandible than in the maxilla. The most common form of OMJ is the osteolytic type. Osteolysis can begin with circumscribed seeding of the spongy bone with destruction of trabeculae. Metastases spread centrifugally and extend into compact bone. OMJ is distinguished from osteomyelitis by the lack of reactive ossification, sequestration, and periosteal reaction. Erosive metastasis produces localized osteolysis. Invasive metastasis produces infiltrative growth with numerous, disseminated, irregular areas of bone destruction. Invasive metastases lack clear borders. OMJ occur rarely in the mandibular canal, pulp, and periapex. Multiple OMJ are rare. Osteoblastic OMJ may occur with carcinomas, lymphomas, leukemias, and most frequently with prostatic carcinoma. Radiologically, osteoblastic OMJ is characterized by speckled sclerosis in the spongy bone; differentiation from osteomyelitis, Paget's disease, or primary tumors of the jaw is difficult. Cases of OMJ that cannot be diagnosed from x-rays require histologic examination. (10 Refs) (In GER)

MUSCULOSKELETAL TUMORS

21. SONOGRAPHIC FINDINGS IN FOUR CASES OF HEMANGIOPERICYTOMA: CORRELATION WITH COMPUTED TOMOGRAPHIC, ANGIOGRAPHIC, AND PATHOLOGIC FINDINGS.

Grant EG, Gronvall S, Sarosi TE, Borts FT, Holm HH, Schellinger D
Dept. Radiology, Georgetown Univ., 3800 Reservoir Road NW, Washington, DC, 20007
Radiology; 142(2):447-451 1982

Four patients with hemangiopericytoma were examined with gray-scale sonography. Three of these patients were also evaluated by computed tomography (CT). The sonographic findings included well-defined, predominately cystic masses in two pa-

tients, a mixed solid and cystic mass in one, and a solid mass with shadowing in another. One hemangiopericytoma changed in sonographic appearance from cystic to solid following radiation. CT identified well-circumscribed masses in all three cases, but added little beyond what was seen on plain radiographs. Sonography may define the limits of a hemangiopericytoma, give information about the internal structure, and offer a way of following response to therapy. However, the sonographic features are varied and the often cystic nature of these tumors may be misleading. (Author abstract) (35 Refs)

22. ANGIOGRAPHIC APPEARANCE OF RECURRENT MALIGNANT MELANOMA BEFORE AND AFTER INTRA-ARTERIAL CHEMOTHERAPY.

Charnsangavej C, Chuang VP, Wallace S, Soo CS, Bowers T
Dept. Diagnostic Radiology, M.D. Anderson Hosp. and Tumor Inst. Univ. Texas System Cancer Center, 6723 Bertner Ave., Houston, TX, 77030
Radiology; 142(2):347-349 1982

Intra-arterial infusion of chemotherapeutic agents (CDDP alone or combined with DTIC) was used to treat recurrent melanoma in 22 patients. In 17 cases, sequential arteriograms were obtained before and after infusion to monitor the procedure. Pre-treatment angiograms usually demonstrated rounded nodules with a homogeneous, hypervascular stain. In three patients, additional deep-seated lesions which were not palpable clinically were detected by angiography. Arteriograms of those patients who responded to chemotherapy revealed partial or complete disappearance of tumor stain. A 46% response rate was observed. The authors feel that angiography is valuable in pretreatment diagnosis and post-treatment evaluation of recurrent melanoma. (Author abstract) (8 Refs)

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COMPUTER ASSISTED TOMOGRAPHY

1. STEREOTACTIC BIOPSY OF BRAIN LESIONS VISUALIZED WITH COMPUTED TOMOGRAPHY.

Lobato RD, Rivas JJ, Cabello A, Roger R
Servicio de Neurocirugia, Ciudad Sanitaria '1 de Octubre', C/ Andalucia, km 5,400, Madrid, Spain
Appl Neurophysiol; 45(4/5):426-430 1982

Computed tomography (CT)-assisted stereotactic biopsy (SB) was performed in 100 patients (2-82 yr old); 109 SBs were obtained. A definite diagnosis was obtained in 97/109 SB specimens. The SB findings were confirmed by histologic examination of resected masses in 16/34 operated patients. All discordance between specimens were found among the 23 patients with gliomas; in 4/23 cases, the apparent cause was misinterpretation of the SB specimens because of artifacts produced by glutaraldehyde fixation. SB could be performed in 1 hr, usually

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under local anesthesia. The procedure was not distressing to the patient and complications were infrequent and relatively minor. SB is recommended for deep-seated masses, whose treatment may be nonsurgical, and as a routine diagnostic step in selected patients with hemispheric processes which may or may not be related to functional areas. Abscesses, primary and secondary tumors, vascular accidents, and demyelinating diseases may show a similar ring-like picture on CT scan and thus cannot be distinguished by radiography. (6 Refs)

2. HIGH RESOLUTION COMPUTERIZED TOMOGRAPHY WITH CORONAL AND SAGITTAL RECONSTRUCTION IN THE DIAGNOSIS OF BRAIN TUMORS IN CHILDREN.

Snead OC, Acker JD, Morawetz RW, Benton JW
Dept. Pediatrics, Radiology, and Neurosurgery, Univ. Alabama Sch. Medicine, Birmingham, AL
Childs Brain; 9(1):1-9 1982

Experience with four cases of intracranial tumors in children (2 male, 2 female; 15 mo-11 yr old) that originally went undetected or were incompletely characterized by conventional computerized tomography (CT) scanning is described. The use of a high resolution CT scanner (GE CT/T8800) with a maximal dose (4 ml/kg) of 300 mgI/ml intravenous contrast agent helped in appropriate diagnosis or clarification of the pathologic process. True spatial orientation was determined with complete reconstructed sagittal and coronal views. In patients with no radiologic evidence of intracranial neoplasm by conventional scanning but with continued clinical manifestations, or in those whose lesions have been incompletely characterized by conventional CT, high resolution scanning with bolus high dose contrast (continuous infusion) and three-dimensional reconstruction may be useful prior to cerebral angiography. Three-dimensional reconstruction is not necessary or advisable for every posterior fossa tumor, but it may be helpful for accurate localization of intracranial masses and for demonstration of the extent of lesions, spatial orientation, and distortion of vascular structures, with a very brief scan time. (16 Refs)

3. DYNAMICS OF CONTRAST ENHANCEMENT IN DELAYED COMPUTED TOMOGRAPHY OF BRAIN TUMORS: TISSUE-BLOOD RATIO AND DIFFERENTIAL DIAGNOSIS.

Takeda N, Tanaka R, Nakai O, Ueki K
Dept. Neurosurgery, Brain Res. Inst., Niigata Univ., Ahahimachi-dori 1, Niigata 951, Japan
Radiology; 142(3):663-668 1982

Thirty-one patients with brain tumors were studied by delayed computed tomographic (CT) scanning performed 1 and 2 hr after intravenous administration of contrast medium. Dynamics of contrast enhancement in the lesion were analyzed quantitatively and qualitatively by calculating the tissue-blood ratio (TBR) at each scan, and are expressed as relative TBR (R-TBR). The R-TBRs obtained 2 hr after the first contrast-enhanced scan were found to be most useful in diagnosis, and were classified into three groups: less than 1.5 (Class I), 1.5 to 3.0 (Class II), and more than 3.0 (Class III). In the glioma group, seven of eight anaplastic gliomas were Class III and all of three anaplastic astrocytomas were Class II. All of seven meningiomas were Class I. Four of five pituitary adenomas were Class II. Three of four neurinomas were Class III. This method is potentially useful in differential diagnosis of some brain tumors. (Author abstract) (19 Refs)

4. BLOOD-BRAIN BARRIER: PHENOMENON OF INCREASING IMPORTANCE TO THE IMAGING CLINICIAN.

Sage MR
Dept. Radiology, Flinders Medical Centre, Bedford Park, South Australia
AJNR; 3(2):127-138 1982

The concept of the blood-brain barrier (BBB), its structure and properties, and the mechanisms of alterations by major disease are reviewed. Contrast enhanced computed tomographic (CT) images reflect changes in the BBB produced by various disease processes. Pathologic alterations in the BBB and their relevance to CT enhancement are discussed, including intraaxial tumors, extraaxial tumors, hypoxia, ischemia, infarction, inflammatory diseases, radiation effects, brain trauma, and cerebral edema. Miscellaneous causes of changes in the permeability of the BBB include multiple sclerosis, epilepsy, disturbances of normal autoregulation, and hypertonic solutions, including contrast media. Intraaxial tumors may have an intact BBB (low-grade gliomas) and therefore exhibit no enhancement, or may have disruption of the BBB, allowing enhancement with contrast media, as in more malignant tumors. Meningiomas have no significant BBB and enhance intensely. The anterior lobe of the pituitary enhances uniformly and pituitary macroadenomas typically appear hyperdense compared with brain tissue. Prolactin-secreting microadenomas often enhance less than surrounding normal tissue. (170 Refs)

5. DENSE CYSTIC CRANIOPHARYNGIOMAS.

Braun IF, Pinto RS, Epstein F
Dept. Radiology, New York Univ. Medical Center, 550 First Ave., New York, NY, 10016
AJNR; 3(2):139-141 1982

Computed tomographic (CT) features of craniopharyngiomas in four patients (3 female, 1 male; 5-32 yr old) are reported. Clinical features included headache, nausea, and papilledema in one patient, blurred vision in one, headache, nausea and vomiting in one, delayed maturation, nausea, vomiting, headache, and chiasmal compression syndrome in one patient. Plain films demonstrated suprasellar calcification in three patients, erosion of the dorsum in one, undercut clinoids in one, and one patient did not have plain films taken. CT revealed calcification, contrast enhancement, and cyst formation. Sharp margins associated with an isodense to hyperdense cyst were seen with no enhancement in the interior of the cyst. Th ree cysts had dense nodular calcification and two had curvilinear capsular calcification. In one cyst, a flat contrast attenuation curve was observed within the interior of the lesion. High intracystic protein concentration caused most of the increased density in these lesions. In vitro scanning of two cyst aspirates demonstrated attenuation values in the hyperdense range. Calcium and iron did not contribute to the overall CT density. Differentiation of cystic from solid tumors is possible using lesion characteristics on CT. Dense cystic craniopharyngioma should be suspected with a well demarcated lesion with sharp margins and a central area of not enhanced homogeneous density. Calcification raises the index of suspicion of an intratumoral cyst. (6 Refs)

6. HIGH RESOLUTION CT WITH IMAGE REFORMATION IN MAXILLOFACIAL PATHOLOGY.

Brant-Zawadzki MN, Minagi H, Federle MP, Rowe LD
Dept. Radiology, Univ. California, San Francisco Sch. Medicine, San Francisco General Hosp., San Francisco, CA, 94110
AJR; 138(3):477-483 1982

Twenty-four patients with maxillofacial pathology were examined with computed tomography (CT) using thin (1.5-5.0 mm) sections allowing computer reformation of images in multiple planes. Eight patients also had pluridirectional tomography. The patients included 14 with facial trauma, four with acute paranasal sinus infections, and six with suspected neoplasms. High resolution CT with reformations allowed thorough evaluation of facial trauma. Fracture sites were correctly identified, as were the relation of fragments to vital structures. The form of structural facial alteration was easily assessed, optimizing the presurgical plan for reconstruction. In addition, CT allowed simultaneous evaluation of associated brain injury. In acute infectious processes and neoplasms, CT defined the extent of involvement and directed the type of therapy. In both situations, accurate assessment of bony destruction permitted definitive planning for bony debridement in infection and helped in the differentiation of benign from malignant processes in neoplasia. Density determination also allowed differentiation of neoplastic soft tissue from inspissated mucus within obstructed sinuses. Experience suggests that CT can be the definitive imaging method in the diagnosis of complex maxillofacial pathology when sufficient evaluation is unavailable from plain films. It was superior to thin-section pluridirectional tomography in several instances. (Author abstract) (10 Refs)

7. CT OF PAROTID TUMORS.

Sone S
Dept. Radiology, Osaka Univ. Medical Sch., Fukushima-ku, Osaka 553, Japan
AJNR; 3(2):143-147 1982

Computed tomographic (CT) findings in 18 surgically proven cases of parotid tumors (10 pleomorphic adenomas, 5 malignant tumors, and 3 benign tumors) are reported. Digital radiography (GE, Scoutview) was performed to select the desired gantry angulations before plain CT and CT combined with sialography. Parotid tumors were clearly revealed on CT scans in nine patients; most had relatively high density in contrast to the low density of the parotid gland. In the other nine patients, the tumors could not be clearly defined on plain images because of the high density of the surrounding parotid glands or the low density of the tumor itself. CT combined with sialography was helpful in these cases to determine the site of origin of tumors located near the junction of the superficial and deep lobes. CT distinguished malignant from benign lesions; irregular or poorly defined margins suggested malignancy while smooth or slightly irregular margins suggested benign lesions. For estimation of tumor extension, one of the most important findings was displacement or deformity of muscles. Facial nerve involvement could be predicted by using the mastoid tip and styloid process for superior tumors and the retromandibular vein for inferior tumors. CT during iv infusion of contrast material was only useful in the case of a parotid cyst. (9 Refs)

8. COMPUTED TOMOGRAPHIC MAMMOGRAPHY USING A CONVENTIONAL BODY SCANNER.

Chang CH, Nesbit DE, Fisher DR, Fritz SL, Dwyer SJ, Templeton AW, Lin F, Jewell WR
Dept. Diagnostic Radiology, Univ. Kansas Coll. Health Sciences and Hosp., Rainbow Blvd. at 39th St., Kansas City, KS, 66103
AJR; 138(3):553-558 1982

The technique for computed tomographic (CT) examination of the breasts using a conventional body scanner is described, and experience with 67 patients is reported. In the diagnosis of both malignant and benign breast lesions, the results with a body scanner were equal to those of a dedicated CT/M mammographic unit. Although the CT study of the breast cannot replace conventional mammography in screening or in routine diagnostic workup, the unique capability of demonstrating both anatomic changes and increased iodide concentration in a cancer provides many advantages over conventional mammography. CT mammography appears to have the capability to detect breast cancers that are occult to other methods. Indications for a CT study of the breasts are: (1) clinically suspected breast cancer, especially with a mammographically occult lesion; (2) questionable mammographic findings, including microcalcifications, tumor shape, architectural distortion, and uncertain lesion location; and (3) evaluation of postbiopsy or postlumpectomy breast cancers when a primary irradiation therapy is contemplated. Breast CT also appears to be a valuable diagnostic tool in searching for a second primary breast cancer, follow-up study of postirradiation of breast cancer, followup study for postmastectomy patients, and screening procedure for genetically high-risk patients, especially those with dense breasts. (Author abstract) (20 Refs)

9. 133XE UPTAKE IN FOCAL HEPATIC FAT ACCUMULATION: CT CORRELATION.

Patel S, Sandler CM, Rauschkolb EN, McConnell BJ
(c/o Sandler) Dept. Diagnostic Radiology, Univ. Texas Medical Sch. Houston, 6431 Fannin St., Houston, TX, 77030
AJR; 138(3):541-544 1982

Irregular fatty infiltration of the liver appears as focal areas of decreased attenuation on computed tomography (CT) and often cannot be distinguished from other, clinically more significant space-occupying lesions. Six patients with CT and clinical findings suggestive of fatty infiltration had xenon-133 ventilation scans of the liver. Four of these patients showed uptake and retention of 133Xe in the corresponding area of the liver, confirming the presence of fatty infiltration. The two patients in whom there was no uptake or retention of xenon by the liver were subsequently proven to have liver abscess and metastatic adenocarcinoma, respectively. (Author abstract) (7 Refs)

10. ISODENSE HEPATIC METASTASES IN FATTY LIVER.

Lee H, Vibhakar S, Petruschak MJ, Bellon EM
Dept. Radiology, Cuyahoga County Hosp., 3395 Scranton Road, Cleveland, OH, 44109
CT; 5(6):537-542 1981

False negatives for liver metastasis were reported by computed tomography (CT) in two patients with diffuse fatty metamorphosis. Radionuclide liver-spleen scan revealed multiple filling defects in the liver of a 61-yr-old woman who had previously been treated for a breast adenocarcinoma with mastectomy and chemotherapy. Both nonenhanced and enhanced CT examination of the abdomen, however, revealed uniformly decreased liver density with no evidence of intrahepatic metas-

tases. Percutaneous liver biopsy revealed metastatic adenocarcinoma in the liver with diffuse fatty metamorphosis. CT scan of the abdomen of 60-yr-old woman with a poorly differentiated squamous cell carcinoma of the lung demonstrated a large soft tissue mass in the head of the pancreas, and another lobulated mass in the midabdomen that originated from the mesentery. Liver density was uniformly decreased. No definite metastatic lesion could be identified in the liver. However, ultrasonographic examination of the abdomen showed a discrete, hypoechoic lesion in the right lobe of the liver inferiorly. Liver biopsy during laparotomy showed a metastatic, poorly differentiated squamous cell carcinoma in a fatty liver. The risk of excluding the presence of metastasis in fatty liver based on CT examination alone is discussed. (26 Refs)

11. COMPUTED TOMOGRAPHY, ANGIOGRAPHY AND ULTRASOUND IN STAGING OF RENAL CARCINOMA.

Karp W, Ekelund L, Olafsson G, Olsson A
(c/o Ekelund) Central Dept. Diagnostic Radiology, Univ. Hosp., S-221 85 Lund, Sweden
Acta Radiol [Diagn] (Stockh); 22(6):625-633 1981

Preoperative evaluation of the extent of the renal tumor is of value in determin ing the prognosis of the patient and the most suitable therapy. CT and angiography were reviewed in 27 cases of renal carcinoma to evaluate tumor involvement of lymph nodes, renal vein, vena cava, and the perinephric space. In 26 of these cases the ultrasound examination was similarly reviewed. Comparison of ultrasound, CT, and angiography demonstrated that staging of renal tumors with ultrasound is mainly limited by its inability to demonstrate extrarenal infiltration Both CT and ultrasound proved reliable in the demonstration of tumor spread to the renal vein and inferior vena cava. CT and angiography were equally effective in the evaluation of tumor extension; since CT is easier to perform, less invasive and less time consuming than angiography it should be the primary method for staging of renal neoplasms. Angiography offers detailed information on the vascular supply of the tumor important for the choice of surgical approach and should be performed only on special indications. (Author abstract) (22 Refs)

12. ROLE OF COMPUTED TOMOGRAPHY IN THE EVALUATION AND MANAGEMENT OF CARCINOMA OF THE PROSTATE.

Giri PG, Walsh JW, Hazra TA, Texter JH, Koontz WW
Dept. Radiation Therapy, Univ. Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, KS, 66103
Int J Radiat Oncol Biol Phys; 8(2):283-287 1982

Experience in using computed tomography (CT) for staging and management of prostatic carcinoma (PC) in 25 patients with biopsy-proven PC between 1978 and 1980 is reported. Twelve patients had surgical confirmation of the extent of disease. CT criteria for staging were identical to those used in established clinical staging. The accuracy of CT in identifying nodal involvement was assessed by comparing CT pelvic lymph node diagnosis with histological examination of lymph nodes. CT was correct in 10/12 patients (83%). CT stage differed in 7/25 patients. One patient with clinical Stage A2 was upgraded to D1 because of lymph node involvement. Two clinical Stage B patients were upgraded by CT; one because of seminal vesicle involvement and the other because of extracapsular extension. One Stage B patient was upgraded to D1 by CT as a result of pelvic node involvement. Three clinical Stage C patients had a change in Stage by CT; one was downgraded, and two were upgraded to Stage D1 and D2 because of pelvic node and bladder base involvement, respectively. All six clinical Stage D patients were certified Stage D by CT. CT can be used to evaluate response to treatment and early detection of recurrence. CT can be used also as an adjuvant procedure in staging, treatment planning, and making therapeutic decisions regarding an implant vs external beam therapy. (32 Refs)

BREAST TUMORS

13. PERCUTANEOUS INJECTION OF CONTRAST MEDIUM INTO BREAST LESIONS FOR RADIOGRAPHIC EXCLUSION OF MALIGNANCY.

Sigfusson BF, Andersson I, Ljungberg O
Dept. Diagnostic Radiology, Malmo General Hosp., Univ. Lund, S-214 01 Malmo, Sweden
Br J Radiol; 55(649):26-31 1982

Contrast medium was injected percutaneously into palpable breast lesions in 63 patients in order to demonstrate lactiferous ducts. Of 35 benign and mammographically definable tumors, 30 were successfully punctured and ducts were visualized in 20, while ducts were demonstrated in 7/21 non-definable lesions. Ducts were seen in 10/13 fibroadenomas removed by surgery, in 2/4 hamartomas, and in 2/3 cases of mastitis. No ducts were seen in six solid, malignant tumors examined, while one intracystic papillary carcinoma showed filling defects caused by the malignant growth. It was concluded that the method is simple, and that the demonstration of ducts is an indication of the benign nature of a lesion. (Author abstract) (5 Refs)

14. DIAGNOSIS OF MAMMARY CANCER WITH ECHOMAMMOGRAPHY.

Vlaisavljevic V
Ginekoloski odjel, Opca bolnica Maribor OOUR Zastita zena i djece, Maribor, Yugoslavia
Libri Oncol; 10(2/3):239-241 1981

Results of echomammography (EMG) used for diagnosing mammary cancer (MC) were compared with those obtained by palpation (PA), and mammography (MG). Tumors were diagnosed in 68/74 patients by PA, and with EMG 70/74 patients were diagnosed. MG was performed in 57 patients and results were negative in 2. In one patient with non-palpable MC, MG showed microcalcifications, and EMG showed MC. Echographic characteristics (EC) of tumors were not reliable in diagnosing the nature of the tumor. MG was more reliable in diagnosing the empty type of mammary gland, but in cases where MG showed vast, confused, dysplastic changes of the mammary gland, EMG was able in 50% of the cases to indicate the tumor. Av size of tumors diagnosed with PA was 27.49 -15.50 mm, with MG was 20.36 -9.60 mm, and with EMG was 18.02 - 9.26 mm. Using EMG, axillary lymph nodes were diagnosed, their EC were similar to those of benign mammary tumors. MG and EMG are complementary methods. MG diagnoses non-palpable mammary lesions with diameter less than 10 mm, while EMG gives better information about the structure of tumors greater than 10 mm. EMG is useful in guiding fine needle biopsy of the mammary lesions. (6 Refs) (In SCR)

15. ULTRASONIC APPEARANCE OF MAMMARY CARCINOMA WITH A DEDICATED WHOLE-BREAST SCANNER.

Maturo VG, Zusmer NR, Gilson AJ, Bear B
Ultrasound Section, Baumritter Inst. Nuclear Medicine, Mt. Sinai Medical Center, 4300 Alton Road, Miami Beach, FL, 33140
Radiology; 142(3):713-718 1982

Forty-four pathologically proved mammary carcinomas were studied by clinical examination, xeroradiography, and ultrasonography with a dedicated whole-breast scanner. Abnormalities reflecting carcinoma were shown by echography in 90% of cases and xeromammography in 97%. Ultrasonic manifestations of malignancy were separated into four categories: (a) a solid, hypoechoic mass; (b) a hyperechoic focus: (c) an irregular, echogenic zone of parenchymal disruption; and (d) an atypical cystic mass. Dedicated ultrasound instruments enhance interpretation and improve differential diagnostic capability. Sonography demonstrates abnormalities better and permits superior definition of abnormal characteristics in a dysplastic breast than in a fatty, atrophic breast, while xeromammography may be more reliable in postmenopausal women with fatty breasts than in women with mammographically dense breasts. One limitation of current ultrasound equipment is the inability to consistently demonstrate microcalcification. (Author abstract) (20 Refs)

16. COMPLEMENTARITY OF SONOGRAPHY AND RADIOGRAPHY IN MAMMARY PATHOLOGY.

Breyer B, Zunter F, Cepulic E, Kunstek N
Centar za Ginekoloski Karcinom, Petrova 13, Zagreb, Yugoslavia
Libri Oncol; 10(2/3):99-101 1981

Sonography (SG) and radiography (RG) were evaluated in mammary pathology (MP). Clinical examination and RG diagnosed correctly 89% of 180 patients with benign MP and 17/17 with malignant MP. Clinical examination and SG diagnosed correctly 87% of 179 patients with benign MP and 16/17 with malignant MP. When results of SG were combined with RG, correct diagnosis was established in 89% of the 179 patients with benign MP and in 16/17 with malignant MP. Clinical examination gave five false positive (FP) results and one false negative (FN). Results of RG were FP in five of the patients and FN in one; results of SG were seven and two, respectively. Cysts and solid tumors were easily distinguished. Cysts of 4 mm diameter could be diagnosed, but tumor below 1 cm were usually missed. (3 Refs) (In SCR)

GASTROINTESTINAL TUMORS

17. THE RADIOLOGIC DIAGNOSIS AND MANAGEMENT OF HEPATIC METASTASES.

Wallace S, Chuang VP
Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., Texas Medical Center, 6732 Bertner, Houston, TX, 77030
Radiologe; 22(2):56-64 1982

Methods of diagnosing and managing hepatic metastases (HM) are presented. The diagnostic radiologist is responsible for diagnosing the presence, nature, and location of HM. Techniques available include conventional radiography, scintigraphy (SC), ultrasonography (US), computed tomography (CT), angiography (AG), and percutaneous biopsy. A recommended diagnostic sequence begins with SC, followed by US as required. Because of expense CT is used only when other methods produce conflicting results. AG is used for solving particular problems and for therapeutic management. AG includes superselective catheterization (SSC), magnification, infusion technique, and pharmacoangiography. SSC can be accomplis hed in 95% of cases. Hepatic resection is preferred for the relatively uncommon resectable HM. For other cases SSC is recommended to allow hepatic artery infusion (HAI), embolization, and occlusion. HAI allows delivery of high doses of antitumor agents to the HM. In patients with an aberrant hepatic artery, blood flow can be redistributed by inserting a stainless steel coil into the aberrant artery. Transcatheter management of HM depends on the fact that HM are supplied almost exclusively by the hepatic artery, while normal tissue also receives blood from the portal vein. Median survival time for patients with colorectal carcinoma is 8 mo with infusion therapy and 15 mo with infusion therapy with occlusion. In cases treated by embolization following the failure of other treatments, the median survival time is 11.5 mo. (28 Refs)

18. SIMPLIFIED DIAGNOSTIC PROCEDURE FOR PANCREATIC CANCER.

Jacobson G, Hemmingsson A, Lindgren PG, Lonnerholm T, Lorelius LE, Nordgren CE
Akademiska sjukhuset, Uppsala, Sweden
Lakartidningen; 79(4):194-195 1982

Simplified procedure for the diagnosis of pancreatic cancer is proposed. Ultrasonography is the first step in patients with suspected pancreatic tumor. Ultrasonography is followed by sonographically guided biopsy for cytological examination. Endoscopic retrograde cholangiopancreaticography (ERCP) is performed, if the results of the ultrasonographic examination, with or without biopsy, are negative or uncertain. Once pancreatic carcinoma is diagnosed, operability is evaluated by mesenteric arteriography to determine the invasion of the arteria hepatica, arteria lienalis, vena mesenteric superior, vena lienalis or vena portae. Angiography is complemented by percutaneous transhepatic portography in some patients in whom it is difficult to evaluate the arteriographic findings. Radical surgery is performed only in the absence of invasion of these vessels. This diagnostic procedure was used successfully in about 30 patients with pancreatic cancer. It was possible to diagnose 2/3 of all cases of pancreatic cancer by the combination of ultrasonography and biopsy. Percutaneous transhepatic cholangiography was eliminated, because ERCP was found to have greater diagnostic effectiveness. (12 Refs) (In SWE)

19. ASSESSMENTS OF ERCP, US, CT, AND RI IN DIAGNOSIS OF PANCREATIC CANCER.

Kuno N, Kido C, Kasugai T, Matsuura A, Kurimoto K, Ito Y, Tanehiro K, Sugihara Y, Kano T
First Dept. Internal Medicine, Aichi Prefecture Cancer Center, Aichi, Japan
Gastroenterol Endosc; 23(2):264-273 1981

Diagnostic values of endoscopic retrograde cholangiopancreatography (ERCP), ultrasonography (US), computed tomography (CT), and radioisotopic imaging (RI) were compared in 22 patients with pancreatic cancer. According to surgical or autopsy findings, the carcinomas were shown to be in th e pancreatic head in 13 patients and in the body and tail of the pancreas in 9. Results of the ERCP, US, CT, and RI were interpreted as correct, suspected cancer, or incorrect. Correct or suspected results were observed in 19/22 patients with ERCP, in 9/11 with US, in 15/18 with CT, and in 14/18 with RI. With respect to the location of carcinomas of the head of the pancreas, correct or suspected diagnoses were

achieved most often with CT, followed in descending order by ERCP, US, and RI. With respect to the location of carcinomas of the body and tail of the pancreas, correct or suspected diagnoses were achieved most often with ERCP, followed in descending order by US, RI, and CT. Of the 22 patients, 4 had resectable tumors, and the 4 cases were correctly diagnosed with ERCP. ERCP was thought to be the best method to detect resectable tumors, but each of the four methods was thought to be useful for diagnosis of the presence or absence of cancer in patients with jaundice. Combined use of all four methods was thought to be necessary for definitive diagnosis of pancreatic cancer. (25 Refs) (In JPN)

GENITOURINARY TUMORS

20. LYMPHANGIOGRAPHY WITH FINE-NEEDLE ASPIRATION BIOPSY OF PELVIC AND ABDOMINAL LYMPH NODES IN CANCER STAGING.

Correa RJ
The Mason Clinic, 1100 Ninth Ave., Seattle, WA, 98101
Urol Clin North Am; 9(1):153-155 1982

Evaluation of regional lymph nodes of patients with prostatic cancer by staging lymphadenectomy and lymphangiography (LAG) is discussed. Use of fine-needle biopsy (FNB) of the lymph nodes as a supplement to LAG improves accuracy significantly. The FNB procedure is described. Presence of a tumor can be confirmed cytologically within a few min after the aspirate is obtained and additional samples can be aspirated if needed. Perforation of the bowel or a major blood vessel is a potential hazard but has not been a significant problem. Advantages of FNB are the ability to conduct the entire staging procedure on an outpatient basis, a false-positive rate of zero, and elimination of equivocal interpretations of the lymphangiographic films. Use of FNB with LAG in 121 patients with prostatic cancer is reported. The false-negative rate was 17%. Tumorous lymph nodes were confirmed in 6% of patients with clinical Stage A2 disease, 5% with Stage B, and 26% with Stage C. In patients with an intermediate risk of metastasis, FNB and LAG may be useful in staging while reducing the number of operations. (9 Refs)

HEAD AND NECK TUMORS

21. THE DIAGNOSIS OF THE EXTENT OF TUMORS OF THE GLOMUS JUGULARE.

Pech A, Cannoni M, Thomassin JM, Abdul S, Zaneret M
Clinique O.R.L., C.H.U. de la Timone, F 13385 Marseille, France
Ann Otolaryngol Chir Cervicofac; 98(4/5):215-222 1981

Based on 17 cases of tumors of the glomus jugulare (TGJ) (3 tympanic and 14 jugu lar) and principal series from the literature, a method for determining the extent of TGJ is presented. Clinical examination should test the cranial nerves and include cervical palpation for tumor in the posterior subparotid space. Deafness and facial nerve paralysis are two of the most common presenting signs. Investigations which are considered essential in determining the extent of the lesion include x-rays, angiography, jugulography, and computed tomography. Alternations of the jugular foramen and changes in the tympanic bone and the canal for the facial nerve can be detected by x-rays. The size of the tumor and the vessels which feed it can be determined by angiography. Vessels which usually supply TGJ are the external and internal carotid and the vertebral arteries. Computed tomography can be used to detect lesions extending to the posterior and middle fossae. A classification for TGJ is proposed which includes tympanic tumors, tympanomastoidal tumors, tumors extending posteriorly and to the petrous bone and tumors extending intracranially. Proper classification of TGJ is considered essential before determining a surgical approach. (9 Refs) (In FRE)

HEMATOPOIETIC, RETICULOENDOTHELIAL AND LYMPHATIC TUMORS

22. INFERIOR VENACAVOGRAPHY FOR THE STAGING OF LYMPHOMAS.

Resegotti L, Chiarle S, Cigna F, Grosso B, Dolci C, Pistone M
Dept. Hematology, Ospedale Maggiore SS. Annunziata, via Ospedali 14, I-12038 Savigliano, Italy
Acta Haematol (Basel); 67(2):87-93 1982

Inferior venacavography was used for revealing enlarged retro- or paracaval lymph nodes, some of which are not visualized by lymphography as they lay above L 2. As criteria for involvement of lymph nodes the dislocation or narrowing of the vena cava and the reflux of contrast medium in the lumbar veins were studied. Venacavography was carried out in 48 consecutive patients with lymphoma: 23 Hodgkin's disease and 25 non-Hodgkin's lymphoma. Signs of enlargement of paracaval lymph nodes were seen in 52% of patients with Hodgkin's disease and in 80% of the cases of non-Hodgkin's lymphoma. A fairly good agreement was found between lymphograms and cavograms. Cavography proved to be an easy, inexpensive and minimally invasive technique that can be repeated several times without inconveniencing the patients too much, thus enabling restaging of patients after therapy; moreover, it produced fairly good urograms as the contrast medium is promptly eliminated through the kidney, thus eliminating the need for iv pyelography. (Author abstract) (24 Refs)

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COMPUTER ASSISTED TOMOGRAPHY

1. CT FINDINGS IN CEREBELLAR HEMANGIOBLASTOMAS.

Heiss E, Albert F
Neurochirg. Klinik, Univ. Erlangen-Nurnberg, Schwabachanlage 6, D-8520 Erlangen, W. Germany
ROEFO; 136(2):151-156 1982

The computed tomographic (CT) findings in 16 personal cases of cerebellar hemangioblastomas are presented. According to other reports in the literature, three-quarters of the tumors were cystic, containing a small mural nodule, whereas the others were predominantly solid. By CT scan the cystic tumors were always identified as roundish or oval space-occupying lesions, sharply demarcated from the surrounding tissue. The solid portion of these tumors, projecting into the cystic part, was delineated more precisely by contrast enhancement, but sometimes escaped identification. On the contrary, even

HE 20.3173/2:

after contrast enhancement the predominantly solid tumors could not be clearly identified as hemangioblastomas. Calcification could not be demonstrated. Additional angiographic investigations were imperative in order to establish the diagnosis, besides visualizing further hypervascular nodules of hemangioblastoma, which CT scanning failed to reveal. (Author abstract) (31 Refs) (In GER)

2. PATHOLOGICAL CORRELATION OF CT RING IN RECURRENT, PREVIOUSLY TREATED GLIOMAS.

Selker RG, Mendelow H, Walker M, Sheptak PE, Phillips JG
Dept. Neurosurgery, Univ. Pittsburgh, Montefiore Hosp., 3459 Fifth Ave., Pittsburgh, PA, 15213
Surg Neurol; 17(4):251-254 1982

The meaning of the enhancing ring commonly seen on computerized tomographic (CT) scans in patients with recurrent, treated glioblastoma has long been of concern. Does the ring represent radiation necrosis, pseudocapsule formation, compressed adjacent brain, or, in fact, a peripheral zone of viable tumor? We employed a multiple intratumoral biopsy technique at the time of reoperation to investigate this ring. Pathological evidence is presented documenting the content of the ring to be viable tumor. It is suggested that perhaps treatment failure may be determined on sequential CT examinations by comparing the volume and degree of contrast enhancement. (Author abstract) (12 Refs)

3. COMPUTED TOMOGRAPHY IN THE DIAGNOSIS OF PAROTID GLAND TUMOURS.

Golding S
Royal Marsden Hosp., Sutton, Surrey, England
Br J Radiol; 55(651):182-188 1982

Twenty patients with swelling of the parotid region have been examined by computed tomography (CT). CT correctly demonstrated a mass in 11 patients and correctly excluded a mass in 9 patients. Five patients had primary parotid neoplasms, all of which showed higher attenuation values than normal salivary tissue. The other masses included cystic hygroma, branchial cyst, carotid sheath hamartoma and metastases in the region of the gland. Neither intravenous nor intraglandular contrast medium was necessary for diagnosis. CT is superior to sialography in demonstrating the total extent of a mass, particularly when there is involvement of the deep lobe of the gland or the parapharyngeal space. The appearance at CT following sialography with oily contrast media suggest that oil persists in the gland despite apparent complete clearing at sialography. CT should be regarded as the investigation of choice in patients with clinical features suggesting a mass in the region of the parotid. (Author abstract) (12 Refs)

4. SAGITTAL AND CORONAL CT RECONSTRUCTION FOR DEMONSTRATION OF SUBCARINAL ADENOPATHY.

Gale ME, Pugatch RD
Dept. Radiology, Boston Veterans Admin. Medical Center, 150 South Huntington Ave., Boston, MA, 02130
J Comput Assist Tomogr; 6(2):249-253 1982

Although standard sequential axial transverse images of the thorax obtained at 10 mm intervals are usually diagnostic for subcarinal lymph node enlargement, we have found reconstruction of the subcarinal area in both sagittal and coronal computed tomographic (CT) projections to provide a useful format for further defining important anatomic relationships. The normal CT anatomy of the subcarinal area is defined and contrasted with the appearance of adenopathy, esophageal cancer, and left atrial enlargement in various reconstructed formats. The clinical application of such imaging is useful in selected cases. Therefore, radiologists monitoring chest CT should perform appropriate reconstructions when indicated. (Author abstract) (13 Refs)

5. CT DENSITOMETRY OF PULMONARY NODULES: A PHANTOM STUDY.

Godwin JD, Fram EK, Cann CE, Gamsu GG
Dept. Radiology, Duke Univ. Medical Center, Box 3808, Durham, NC, 27710
J Comput Assist Tomogr; 6(2):254-258 1982

Density determinations by computed tomography (CT) have been used to distinguish benign from malignant pulmonary nodules. Unfortunately, clinical scanning of pulmonary nodules frequently yields artifactually low CT numbers because of partial vol artifacts from the surrounding aerated lung. In order to determine the best performance that can be expected from a CT scanner in providing CT numbers for pulmonary nodules free of partial vol artifacts, we scanned a phantom containing plastic spheres surrounded by air to simulate nodules in aerated lung. The relations among size of the sphere, slice thickness (collimation), and centering of the CT slice critically affected the number of accurate voxel values. A simple computer model accurately duplicated the experimental findings. These data enable us to define the basic geometric requirements for accurate CT densitometry of pulmonary nodules. (Author abstract) (3 Refs)

6. CT MANIFESTATIONS OF RADIATION-INDUCED CHANGE IN CHEST TISSUE.

Pagani JJ, Libshitz HI
(c/o Libshitz) Dept. Diagnostic Radiology, Univ. Texas M. D. Anderson Hosp. and Tumor Inst. at Houston, Houston, TX, 77030
J Comput Assist Tomogr; 6(2):243-248 1982

The computed tomographic appearance of acute and chronic radiation change in the thorax is described. Acute radiation pneumonitis demonstrates patchy, confluent regions of increased pulmonary attenuation. Chronic changes include soft tissue density fibrotic changes that blend smoothly with the pleural surfaces and adjacent mediastinal structures. Also seen are bronchiectatic changes and distortion of normal intrathoracic anatomic relationships. Both the acute and chronic changes usually make linear lateral margins with adjacent aerated lung. Development of a discrete mass or focal cavitation after the radiation changes have become stable is suspect for recurrent tumor or infection. (Author abstract) (2 Refs)

7. THE RIGHT MID-LUNG WINDOW. A POTENTIAL SOURCE OF ERROR IN COMPUTED TOMOGRAPHY OF THE LUNG.

Goodman LR, Golkow RS, Steiner RM, Teplick SK, Haskin ME, Himmelstein E, Teplick JG
Dept. Diagnostic Radiology, Hahnemann Medical Coll. and Hosp., 230 N. Broad St., Philadelphia, PA, 19102
Radiology; 143(1):135-138 1982

On conventional chest radiographs, an area of diminished vascularity usually indicates focal disease. On CT scans of the chest, however, there is often a focal vascular deficiency in the right mid-lung that appears to be normal. In a study of 50 patients, diminished vascularity was noted at the level of the

bronchus intermedius on 92% of the scans. The anatomical basis for this finding is discussed. (Author abstract) (6 Refs)

8. LIVER LESIONS: COMPARATIVE ACCURACY OF SCINTIGRAPHY AND COMPUTED TOMOGRAPHY.

Knopf DR, Torres WE, Fajman WJ, Sones PJ
(c/o Torres) Dept. Radiology, Emory Univ. Sch. Medicine, 1365 Clifton Road, N.E., Atlanta, GA, 30322
AJR; 138(4):623-627 1982

Of 84 cases with both radionuclide and computed tomographic studies of the liver, in 54 the results of the two examinations agreed, in 14 results disagreed, and in 16 cases one of the two tests gave equivocal results. Overall accuracy in detecting or ruling out focal liver disease was 79% for scintigraphy and 98% for computed tomography. In 13 of the 14 patients in whom studies did not agree, the scintigram was falsely negative. In 10 of these 13 false-negative scintigrams, small (less than 2 cm) solitary or multiple lesions were detected on computed tomography in patients who had normal liver function studies. In seven patients in whom both studies agreed, computed tomography provided additional, extrahepatic information that altered clinical management. Scintigraphy was 86% accurate in detecting liver disease when the patient had a gastrointestinal neoplasm, but only 74% accurate for nongastrointestinal neoplasm. Computed tomography was over 94% accurate in both situations. These data indicate an advantage of computed tomography as the initial screening examination for space-occupying lesions of the liver, especially in patients with a primary diagnosis of nongastrointestinal neoplasm (Author abstract) (12 Refs)

9. A PROSPECTIVE EVALUATION OF COMPUTED TOMOGRAPHY AND ULTRASOUND OF THE PANCREAS.

Hessel SJ, Siegelman SS, McNeil BJ, Sanders R, Adams DF, Alderson PO, Finberg HJ, Abrams HL
Dept. Radiology, Scottsdale Memorial Hosp., 7400 East Osborn Road, Scottsdale, AZ, 85251
Radiology; 143(1):129-133 1982

A prospective cooperative study was performed to assess the relative efficacy of computed tomography (CT) and ultrasound in detecting and identifying pancreatic lesions. Of the 279 patients in the study, 146 were found to have a normal pancreas, and 133 had an abnormal pancreas. All patients underwent both CT and ultrasound examinations. Forty-four ultrasound examinations were technically unsatisfactory. When these suboptimal examinations were excluded, CT had a sensitivity of 0.87 and a specificity of 0.90 in detecting an abnormal pancreas. Ultrasound had a sensitivity of 0.69 and a specificity of 0.82. In detecting a lesion and identifying it as malignant or inflammatory, CT had a sensitivity of 0.84 and ultrasound had a sensitivity of 0.56. It is concluded that CT is the method of choice for detecting a pancreatic lesion, assessing its extent, and defining its etiology. (Author abstract) (25 Refs)

10. COMPUTED TOMOGRAPHY OF THE PANCREAS: THREE SECOND SCANNING VERSUS 18 SECOND SCANNING.

Levitt RG, Stanley RJ, Sagel SS, Lee JK, Weyman PJ
Mallinckrodt Inst. Radiology, Washington Univ. Sch. Medicine, 510 So. Kingshighway Blvd., St. Louis, MO, 63110
J Comput Assist Tomogr; 6(2):259-267 1982

Diagnostic accuracy of pancreatic computed tomography (CT) using a 3 s scanner was compared to our previously published results using an 18 s scanner. Technically unsuccessful examinations have decreased to less than 1%. Pancreatic masses were detected prospectively in 83% of patients with pancreatic carcinoma and retrospectively in all such patients. False negative diagnoses of normal pancreas in proven pancreatic carcinoma were reduced fourfold down to 6%. False positive diagnoses of pancreatic carcinoma remained less than 1% but were not significantly reduced compared to our 2nd yr experience using an 18 s scanner. Interpretation errors and errors due to limitations of CT as a diagnostic technique are discussed. (Author abstract) (18 Refs)

11. ADRENAL PSEUDOTUMORS ON COMPUTED TOMOGRAPHY.

Berliner L, Bosniak MA, Megibow A
(c/o Bosniak) Dept. Radiology, New York Univ. Medical Center, Univ. Hosp., 560 First Ave., New York, NY, 10016
J Comput Assist Tomogr; 6(2):281-285 1982

Masses arising in the adrenal gland may be simulated on computed tomography (CT) by a number of anatomical structures and variations, and by certain pathological conditions in adjacent organs. These adrenal pseudotumors include the following: fluid-filled gastric fundus, prominent splenic lobulations, upper pole renal masses, tortuous splenic vessels, and pancreatic masses. These conditions, which represent pitfalls in the diagnosis of adrenal tumors on CT, are demonstrated and discussed. Certain guidelines will be discussed so that these potential pitfalls may be avoided. (Author abstract) (9 Refs)

12. DIAGNOSIS OF LYMPH NODE METASTASES BY LYMPHOGRAPHY, COMPUTER TOMOGRAPHY, AND PERCUTANEOUS FINE-NEEDLE BIOPSY.

Rothenberger K, Feuerbach S, Friesen A, Hofstetter A, Pensel J, Pfeifer KK, Rupp N
Urologische Abteilung, Stadtisches Krankenhaus Munchen, Thalkirchner Strasse 48, 8000 Munchen 2, W. Germany
Therapiewoche; 32(6):701-704,707 1982

The sensitivity and specificity of lymphography (LG), computer tomography (CT), and fine-needle biopsy (FNB) for detection of lymph node metastases (LNM) were evaluated in 40 cases of testicular tumor and 33 cases of carcinoma of the bladder or prostate. LG indicated LNM indirectly by detecting alterations in the structure of lymph nodes and vessels. CT detected LNM larger than 1.5 cm in diameter by detecting space-occupying growths and displacement of organs. In cases of testicular tumors CT had a specificity of 100% and a sensitivity of 100%; LG had a specificity of 95% and a sensitivity of 55%. The low sensitivity of LG was due to variations in accumulation of contrast medium by LNM that resulted in failure to detect some LNM. In patients with tumors of the prostate or bladder LNM were detected in 5 cases by LG and CT; conflicting results were produced by LG and CT in 11 cases; Negative results were produced by both methods in 17 cases. FNB of retroperitoneal lymph nodes detected tumor cells in 118/354 patients. Based on clinical results CT is recommended as the method of choice for detecting LNM of testicular tumors. Negative CT findings, which are not conclusive, should be followed by LG and FNB in patients with seminoma and by lymphadenectomy in patients with teratoma. In patients with tumors of the bladder or prostate, CT is sufficient if results are positive; LG is more sensitive than FNB, although results can be improved by using both methods. (9 Refs) (In GER)

13. COMPUTED TOMOGRAPHY IN THE EVALUATION OF METASTATIC ADENOCARCINOMA FROM AN UNKNOWN PRIMARY SITE: A RETROSPECTIVE STUDY.

McMillan JH, Levine E, Stephens RH
Dept. Diagnostic Radiology, Univ. Kansas Coll. Health Sciences and Hosp., Rainbow Blvd. at 39th St., Kansas City, KS, 66103
Radiology; 143(1):143-146 1982

Abdominal computed tomography (CT) and other studies were evaluated retrospectively in 46 patients with metastatic adenocarcinoma or undifferentiated carcinoma in whom the primary tumor site was not evident from the history, physical examination, or chest radiograph. The primary site was ultimately located in 21 patients (45.7%). CT of the abdomen in particular detected it in 16 patients (34.8%) and demonstrated additional and often unsuspected metastatic disease in 65%. CT proved superior to sonography in both diagnosis and assessment of the extent of disease and had a significantly higher diagnostic yield than contrast studies of the urinary and gastrointestinal tracts. Abdominal CT is recommended as the initial modality in patients with metastatic adenocarcinoma of unknown primary origin. If the abdominal scan is negative, it should be followed by pelvic sonography or CT, particularly in women. Contrast studies should be limited to patients with specific organic dysfunction. (Author abstract) (16 Refs)

14. CT OF BENIGN CYSTIC TERATOMAS.

Friedman AC, Pyatt RS, Hartman DS, Downey EF, Olson WB
Walter Reed Army Medical Center, Washington, DC, 20012
AJR; 138(4):659-665 1982

The computed tomographic (CT) findings in nine benign cystic teratomas are presented and compared with radiographic, sonographic, and pathologic data. CT rendered a specific diagnosis in six cases and was highly suggestive in two, with results superior to other imaging methods. In each instance, CT was successful in predicting or excluding invasion of adjacent structures, but was not reliable in predicting or excluding adherence to them. Specific CT characteristics of benign cystic teratomas are predominantly fatty mass with a denser dependent element and globular calcification, bone, or teeth in a solid protuberance into the cyst cavity. Suggestive patterns include fatty mass with rim calcification and water density mass with globular calcification and solid tissue elements. Illustrated for the first time are the CT appearances of the different calcifications seen in benign cystic teratomas. (Author abstract) (18 Refs)

BREAST TUMORS

15. BIAS AND THE ASSOCIATION OF MAMMOGRAPHIC PARENCHYMAL PATTERNS WITH BREAST CANCER.

Boyd NF, O'Sullivan B, Campbell JE, Fishell E, Simor I, Cooke G, Germanson T
Dept. Medicine, Princess Margaret Hosp., 500 Sherbourne St., Toronto, Ontario, Canada
Br J Cancer; 45(2):179-184 1982

We have carried out a case-control study to evaluate the association between Wolfe's mammographic patterns and the risk of breast cancer, and to examine the influence of control selection and the radiologist who reads the films upon the results obtained. Mammograms of the non-cancerous breast of 183 women with unilateral breast cancer were compared with mammograms from two age-matched control groups: a group of asymptomatic women attending a screening center, and a group of symptomatic women referred for the diagnostic evaluation of suspected breast disease. Films were arranged in random sequence and independently classified by three radiologists. A strong and statistically significant association was found between mammographic dysplasia and breast cancer when controls from the screening center were compared to cases, but not when cases were compared to women referred for the diagnostic evaluation of breast disease. This result appears to arise in part because of an association between symptoms of benign breast disease and mammographic dysplasia, and suggests that some previous negative studies of the association of mammographic patterns with breast cancer may have arisen from the inclusion of symptomatic subjects as controls. (Author abstract) (23 Refs)

16. SIGNIFICANCE OF A NEGATIVE MAMMOGRAM IN PATIENTS WITH A PALPABLE BREAST TUMOUR.

Langlands AO, Tiver KW
Dept. Radiation Oncology, Westmead Centre, Westmead, New South Wales 2145, Australia
Med J Aust; 1(1):30-31 1982

Five patients with breast cancer were referred for mammography at first presentation. In each case, a negative report accepted at face value resulted in a delay of definitive treatment of 2 to 36 mo. When the patients presented again, their tumors were either locally advanced or three or more axillary nodes were involved. We analyzed the possibilities which affect the accuracy of any mammogram report. All the potential clinical situations examined yielded an unacceptably high probability of error, which precluded the use of mammography as a non-invasive technique for diagnosing a palpable tumor and excluding the presence of a carcinoma. (Author abstract) (3 Refs)

17. CLINICAL TESTING OF MAMMOGRAPHY WITH FILM-FOLIO COMBINATION.

Paterok EM, Sabel M, Weishaar J
Klinik fur Frauenheilkunde, Universitatsstrasse 21/23, 8520 Erlangen, W. Germany
Roentgenpraxis; 35(1):20-26 1982

Clinical testing of mammography (MG) with film-folio combination (FFC) was compared with conventional MG in 2,000 patients or 3,604 breast examinations. Results of the two methods were comparable, but the irradiation exposure using the conventional MG was 10 times higher. Of 3,604 breast, 2,040 had normal thickness, 448 had a small amount of structures that produced shadows, and 1,116 breast were very thick. Macrocalcifications were observed in 648 of the breast, and microcalcifications in 874. Thickening, shadows of tumors, and structural abnormalities were noticed in 976 of the breasts. MG breasts findings were histologically confirmed in 192 cases; 88 of them did not have palpable tumors, and after biopsy 13 carcinomas, 7 carcinomatous lesions in situ, 3 epithelial proliferations, and 63 benign processes were diagnosed. FFC procedure was recommended for regular surveys and follow-up of patients after mastectomy. Special techniques for very thick breasts were discussed. (10 Refs) (In GER)

18. THERMOLUMINESCENT DOSIMETERS FOR IN VIVO MEASUREMENT OF RADIATION EXPOSURE AND RELATED DOSE IN MAMMOGRAPHY.

Omran HA
Div. Radiologic Sciences, Dept. Medical Allied Health Professions, Univ. North Carolina, Medical Sch., Wing B, 207-H, Chapel Hill, NC, 27514
Radiol Technol; 53(5):383-392 1982

A procedure is described for using thermoluminescent dosimeters (TLD) for measuring entrance skin exposure and mammographic unit output consistency within a hospital setting. The system was used in 25 randomly selected patients undergoing routine mammographic examination. Overall acceptability of the procedure, time required, and reliability of measurement are discussed. Results compare favorably with other mammographic exposure measurements and calculations. (5 Refs)

19. GALACTOGRAPHY IN NIPPLE DISCHARGE. A STATISTICAL ANALYSIS AND COMPARISON WITH MAMMOGRAPHY.

Katz R, Lerner MA, Feller N
Dept. Radiology, Hasharon Hosp., Tel Aviv, Isreal
Breast; 8(1):18-21 1982

Galactography, a diagnostic technique for breast discharge, is described and compared with mammographic and histological diagnostic techniques. Galactography involves the injection of contrast medium into one or more duct orifices followed by radiographic evaluation. Statistical analysis reveals an equal probability of obtaining a normal or pathologic mammogram in galactographically established breast disease. Galactography should be performed on patients with breast discharge, since mammography alone cannot detect ductectasis, intraductal papilloma, or intraductal carcinoma. (6 Refs)

20. ANGIOSARCOMA OF THE BREAST: MAMMOGRAPHIC AND TELETHERMOGRAPHIC EVALUATION IN FOUR CASES.

Bergonzi S, Viganotti G, Guzzon A, Gardani G, Coopmans de Yoldi G
Istituto Tumori, Via Venezian, 1, 20133 Milano, Italy
Radiol Med (Torino); 68(1):45-50 1982

Four patients (20-40 yr old) with histologically confirmed mammary angiosarcoma had mammography (MA) and two MA plus telethermography (TTG). Location of the tumors was on the right side in all of the patients. Familial history of any cancer and especially mammary cancer was not found. The tumors appeared and grew rather rapidly (9-15 cm diameter). One patient had a small tumor removed elsewhere 13 mo before, and was misdiagnosed as benign clinically and histologically. Another patient had biopsy of the tumor 2 yr before that was diagnosed as cystic. Only one patient felt pain. Clinical diagnosis of the tumors was angiosarcoma in one of the patients, phyllode tumor in two, and giant fibroadenoma in one. MA indicated parenchymal thickening and intense homogenous opacity. Neither macro nor micro calcifications were observed. MA diagnosis was phyllode tumors or giant fibroadenoma in the three patients and malignant tumor only in one. TTG indicated malignant process in both tumors. After surgery, lymph nodes did not show metastases. All four patients had mastectomy, followed by radiotherapy or chemotherapy that did not influence the rapid evolution of the disease. Av survival was 13 mo. It was suggested that MA diagnosis of benign tumors, to be followed by TTG examination, and if the results are positive by histologic examination. (15 Refs) (In ITA)

21. NONCONTACT THERMOGRAPHIC METHOD IN THE DIAGNOSIS OF BREAST DISEASES.

Gasova Z, Vachousek M
Ustave biofyziky a nuklearni mediciny, FVL KU, K sokolovne 241, 503 41 Hradec Kralove, Czechoslovakia
Cesk Radiol; 36(1):27-31 1982

The diagnostic values of noncontact thermography (NCT), liquid-crystal contact thermography (LCCT), ultrasonography (UG) and mammography (MG) were studied in 168 women with symptoms of breast diseases. NCT showed normal conditions in 12/25 patients without pathological changes, in 12/107 patients with benign changes, and in 1/36 patients with malignant processes. It showed benign changes in 13/25 patients without pathological changes, 82/107 with benign diseases, and in 8/36 with malignant processes. NCT showed malignant changes in 13/107 patients with benign changes and in 37/36 patients with malignancy. The diagnostic sensitivity in the patients with malignant tumors was 75% for NCT and MG, 53.8% for UG and 100% for LCCT. The diagnostic specificity was 90.2% for NCT, 93.3% for MG, and 77.8% for UG. The percentages of false positive findings were 9.8% for NCT, 6.7% for MG and 22.2% for UG. The combination of MG and NCT was employed in 116 patients: the sensitivity was 85.2%, the specificity 87.6%. The findings indicate that the combination of MG with NCT renders the diagnosis more accurate without causing any marked increase in the number of false positive results, because different aspects of the disease are detected by the two different methods. (14 Refs) (In CZE)

GASTROINTESTINAL TUMORS

22. ARTERIOGRAPHIC STUDY OF 32 CASES OF PRIMARY CANCER OF THE LIVER IN BLACK AFRICANS.

Calvy H, Condat JM, Mottes M
Institut de Cardiologie, B.P. V 206, Abidjan, Ivory Coast
Med Armees; 9(6):479-484 1981

Use of arteriography for the diagnosis of primary liver cancer (PLC) was evaluated in 32 black African patients (28 men, 4 women; 25-44 yr old) with PLC. In 19 patients, PLC involved the entire liver, in 10 the right lobe, and in 3 the left lobe. Indirect radiological signs of PLC included compression of large arterial trunks, increase in the caliber of the celiac trunk, deformation of intrahepatic arterial branches, blood vol changes, and venous deformations or compression. Direct radiologic signs included hypervascularization (100% of cases), intratumoral stagnation (40%), intratumoral blood (28%), arterial involvement (28%), arterial amputations (15%), hepaticoportal shunts (15%), and early venous return (12.5%). Radiological signs of PLC metastasis were observed in the diaphragm (1 case), celiac lymph nodes (1), colon (2), subhepatic veins (1), hilus hepatis (2), and portal vein (5). Five patients had a single massive tumor, 6 a multinodular form of tumor, and 16 a diffuse infiltrating form of tumor. The only complication of arteriography in the 32 patients was a hemoperitoneum in one patient. Histopathological examination of 12 needle biopsy specimens revealed 10 hepatomas, 1 case of fibrosis, and 1 case in which results were insignificant. Differential diagnosis of liver disorders and PLC with arteriography is discussed. It was concluded that in the absence of histologic confirmation, arteriography seems to be the best diagnostic method for PLC. (no Refs) (In FRE)

23. ANGIOGRAPHIC DEMONSTRATION OF VENOUS TUMOR INVASION IN HEPATOCELLULAR CARCINOMAS: CHARACTERISTIC PARALLEL LINEAR VASCULAR CHANNELS.

Inoue Y, Tagawa K, Unuma T, Kubo T, Sakamoto M, Shichijo Y
Radiologische Abt., Mitsui Memorial Hosp., 101 Tokyo, Japan
ROEFO; 136(2):196-199 1982

In 13 out of 64 histologically proven hepatocellular carcinomas, tumor was demonstrated in portal or hepatic veins by angiography. Nine of these showed characteristic parallel linear vascular markings corresponding to tumor thrombus. Seven of these were in the portal vein and two in an hepatic vein. (Author abstract) (8 Refs) (In GER)

GENITOURINARY TUMORS

24. ULTRASONOGRAPHIC APPEARANCE OF RENAL CANCER. CORRELATION WITH ARTERIOGRAPHIC AND HISTOPATHOLOGICAL FINDINGS IN 45 CASES.

Dana A, Rethers C, Ody B, Moreau JF, Michel JR
(c/o Michel) Service de Radiologie des maladies de l'appareil urinaire, Hopital Necker, 149, rue de Sevres, F 75730 Paris Cedex 15, France
J Radiol; 63(1):1-8 1982

Ultrasonographic, arteriographic, and histopathological findings were compared in 45 patients with histologically-confirmed renal cancer. Ultrasound images clearly demonstrate the presence of a mass possessing similar echographic characteristics to those of the renal parenchyma (isoechogenic forms). Images are rarely homogeneous and are usually of a heterogeneous nature, either diffuse or including anechogenic zones (heterogenic lacunar forms). The latter appearance is almost specific for tumor necrosis, but a diffuse heterogenic image may be observed with or without the presence of necrosis. Necrotic cancers, with limited peripheral vascularization, present few diagnostic difficulties during ultrasonographic examination: the appearance is that of a solid mass, isoechogenic in the present series, heterogeneous, and with or without anechogenic zones. No correlation exists between the degree of echographic image alterations and the importance of vascularization, poorly vascularized cancers, of particular histological types, demonstrating hypo or hyper-echogenic changes more frequently than typical adenocarcinomas. (Author abstract) (8 Refs) (In FRE)

25. RADIOLOGIC APPROACH TO THE RENAL MASS.

Bernardino ME, Barnes PA, Lewis E, Thomas JL
Dept. Diagnostic Radiology, Univ. Texas M.D. Anderson Hosp. and Tumor Inst., Houston, TX
Cancer Bull; 34(1):16-20 1982

The relationship of older diagnostic approaches (routine abdominal radiography, iv pyelography with tomography, radionuclide studies, and angiography) to the newer techniques of ultrasound and computed tomography (CT) is reviewed, and a radical new approach to diagnosis of the renal mass is demonstrated. Strengths and weaknesses of the newer modalities are discussed. Pediatric renal mass, renal pelvic mass, renal cyst, and solid renal mass are considered, with illustrative CT scan and ultrasound images. Frequency of cyst aspiration can be greatly reduced because ultrasonography is often sufficient for diagnosis of a lesion detected serendipitously; aspiration can be limited only to those lesions about which a question exists. In cases of suspected solid mass, or when the patient is asymptomatic, CT scan is often sufficient for visualization prior to surgery, for assessment of renal vein, inferior vena cava, and liver, and for locating lung nodules. Other more invasive methods may be avoided in many cases. (19 Refs)

26. INDICATIONS AND LIMITATIONS OF THE METHODS USED IN NUCLEAR MEDICAL STUDY FOR UROLOGY.

Vahlensieck W, Doppelfeld E, Winkler C
Urologische Klinik, Universitat Bonn, D-5300 Bonn, W. Germany
Urologe [B]; 22(1):12-18 1982

Static renal scintigraphy is indicated for screening and evaluation of renal anomalies, aplasias, and tumors when excretion urography provides insufficient information, or when use of contrast medium presents unnecessary risks. Scintigraphy can be used to study renal function and morphology in cases of mobile kidney or renal obstruction and to monitor the course of chronic renal conditions, trauma, and kidney transplants. Radioisotopic clearance studies can be used to determine the necessity of nephrectomy or less extensive procedures. Radioisotopic methods are also applicable to studies of residual urine content, reflux, and hormone determinations. (10 Refs) (In GER)

27. SODIUM AMIDOTRIZOATE IN EXCRETION UROGRAPHY.

Lutherer S, Radke U
Urologische Klinik, Caritaskrankenhaus, Uhlandstrasse 7, D-6900 Bad Mergentheim, W. Germany
Urologe [B]; 22(1):19-20 1982

Excretion urography using sodium diatrizoate was performed on 143 nonselected patients (75 men and 68 women, 6-82 yr old) with restricted renal function. Indications for the procedure included chronic inflammatory processes, urinary obstruction, unclear disturbances of renal function, and hematuria (indicative of possible renal tumor). The medium provided good contrast in demonstration of renal parenchyma, calyces, and ureters. The procedure was well tolerated by the patients. (1 Ref) (In GER)

28. DIAGNOSTIC VALUE OF PEDAL LYMPHOGRAPHY IN HYPERNEPHROMA.

Blech M, Zimmermann A, Truss F, Gregl A
Urologische Universitatsklinik, Robert-Koch-Strasse 40, 3400 Gottingen, W. Germany
Therapiewoche; 32(6):661-662 1982

Lymphangiography (LAG) was performed on 17/171 patients undergoing nephrectomy. Comparison of LAG with surgical and histological findings in 11 cases indicated no false-negative LAG results. LAG had no influence on planning of surgery. LAG produced correct diagnoses in 65.2% of 46 postoperative procedures, but did not influence planning of therapy. LAG is indicated only in special cases in which other diagnostic methods, such as sonography and computer tomography do not provide sufficient information. (19 Refs) (In GER)

29. POSSIBILITIES AND LIMITS OF INTRAVESICAL ULTRASONIC TOMOGRAPHY IN STAGING OF CARCINOMA OF THE BLADDER.

Schuller J, Walther V, Staehler G, Bauer HW
(c/o Bauer) Urologische Klinik, Klinikum Grosshadern, Marchioninistrasse 15, 8000 Munchen 70, W. Germany
Therapiewoche; 32(6):689-691 1982

The significance of intravesical ultrasonic tomography (IVUST) in prognosis and therapeutic planning in cases of bladder tumors is evaluated. IVUST was performed in 28 patients by means of a 6 megahertz transducer in place of the optical component of a 24-Charriere resectoscope. The transducer was rotated perpendicular to the long axis of the probe. Various transversal sections were obtained by linear motion of the transducer within the resectoscope. Results of IVUST were compared with pathological findings obtained after serial electroresection and cystectomy. Loss of image quality was reduced to a minimum by applying the transducer directly to the area to be studied. Radial scanning produced nearly ideal reflex behavior. IVUST permitted staging of bladder tumors. Difficulties were encountered in differentiation of deep infiltration of muscle tissue and early stages of extravesical spread, because both conditions presented similar image characteristics. Measurement of tumor extension was possible only when the axial spread of the tumor was less than the depth of penetration of the transducer. (no Refs) (In GER)

30. SONOGRAPHIC FINDINGS IN DISEASES OF THE URINARY BLADDER AND VESICAL CERVIX.

Wensky H, Bertermann H
Abteilung Urologie, Klinikum der Universitat Kiel, Hospitalstrasse 40, 2300 Kiel, W. Germany
Therapiewoche; 32(6):684-686,689 1982

Use of ultrasonography (US) for diagnosis of diseases of the urinary bladder and vesical cervix is described. US studies are performed with the patient in a supine position and the bladder full. The scanning head is placed against the abdomen close to the pubic symphysis. US is capable of demonstrating the thickness of the bladder wall, foreign bodies such as stones or blood clots, localization of bladder tumors larger than 5 mm in diameter, tumor infiltration depth, tumor volume and form, and morphology of the seminal vesicles. US allows differentiation, at least to some extent, of the grade of malignancy of tumors. US is superior to endoscopy for early detection of bladder tumors. US allows noninvasive determination of residual urine volume in disorders of urination. The size of adenomas is precisely measurable; adenoma tissue is marked by a homogeneous echo pattern. Prostatic carcinoma presents distinct structural changes in the prostatic capsule. Carcinoma tissue is marked by inhomogeneous echo patterns. US exceeds conventional radiology and digital palpation in usefulness for evaluation of prostatic adenoma. Staging of malignant tumors is possible, even in Stage T0, with US. (3 Refs) (In GER)

31. VAS DEFERENS VESICULOGRAPHY IN THE STAGING OF CANCER OF THE PROSTATE.

Barasolo E, Acanfora F, Bodo G, Aquilini B
Divisione Urologica, Ospedale Generale Provinciale 'San Andrea', Vercelli, Italy
Minerva Urol; 34(1):31-34 1982

Forty-two patients with prostatic adenocarcinoma (PAC) were diagnosed after the examination of the aspiration biopsy. In 12 patients the diagnosis was confirmed by histologic examination (HE) of the fragments of the neck of bladder obtained by transurethral resection (TUR), and in 20 by HE of the material obtained by TUR. After routine blood and urine analyses, hormone determination, urography, cystography, skeletal radiography, and biopsy; seven of the patients were Stage T1, 25 were Stage T2, 6 were Stage T3, and 4 were Stage T4. After vas deferens vesiculography (VDVG), two of the patients were Stage T1, 29 were Stage T2, 7 were Stage T3, and 4 were Stage T4. In more advanced stages of the disease VDVG confirmed previous findings, while in early stages it had tendency to increase the staging. Typical images of different forms of PAC were presented and considered. No complications were observed due to VDVG, although adverse reaction to contrast medium and infections were reported. It was concluded that VDVG was simple and still useful method in the diagnosis and staging of PAC. (13 Refs) (In ITA)

32. SUPRAPUBIC TRANSVESICAL PROSTATIC SONOGRAPHY IN PROSTATIC ADENOMAS AND CARCINOMAS.

Denkhaus H, Becker H, Donn F
Radiologische Klinik, Universitatskrankenhaus Eppendorf, Martinistrasse 52, 2000 Hamburg 20, W. Germany
Therapiewoche; 32(6):673-676,679-683 1982

Suprapubic transvesical prostatic sonography (STPS) was performed in 90 patients (43-86 yr old, av age 70 yr) with adenoma or carcinoma of the prostate. Patients were examined in a supine position with a maximally filled bladder. The sonographic head was held at a 15-20 degree angle from vertical. Transverse and longitudinal sections were obtained. No complications or discomfort were encountered. Differentiation of adenoma and carcinoma was possible in most cases. Adenomas were characterized by regular contours of the prostate gland. Prostatic tissue presented a generally homogeneous echo pattern. Advanced carcinomas were characterized by irregular and indistinct contours of the prostate gland. Prostatic tissue presented inhomogeneous echo patterns. Differentiation of adenomas from small carcinomas was difficult in some cases, because calcification in adenoma tissue caused inhomogeneous echo patterns resembling those produced by carcinoma tissue. STPS showed improved visualization of the base of the bladder in longitudinal scans relative to computer tomography. STPS resulted in upstaging of 21% of tumors diagnosed as stage B by rectal palpation to stage C. STPS is indicated as a supplement to rectal palpation and computer tomography and is effective for monitoring response to therapy and early detection of tumor recurrence. (28 Refs) (In GER)

33. LYMPHOGRAPHIC ASSESSMENT OF METASTATIC SPREADING OF CARCINOMA OF THE PROSTATE.

Tsyb AF, Tlepshukov GK
Res. Inst. Medical Radiology, USSR Acad. Medical Sciences, Obninsk, USSR
Vopr Onkol; 28(1):38-42 1982

A lymphographic examination of 56 patients with prostatic carcinoma established the incidence of lymphogenous metastases for different stages of primary tumor advancement: there were no metastases in patients with Stage I tumors; metastases were found in 3 out of 16 cases of Stage II tumors; in 4 out of 12 with Stage III tumors and in 13 out of 21 patients with Stage IV tumors. The prevalent site of prostatic carcinoma metastases were iliac lymph nodes. Indications for lymphographic examination depending on local advancement of tumor process are discussed. (Author abstract) (13 Refs) (In RUS)

34. SONOGRAPHIC EVALUATION OF SCROTAL CONTENTS WITH A NEW REAL-TIME MECHANICAL SECTOR SCANNER.

Bertermann H, Forster R, Seppelt U
Abteilung Urologie, Klinikum der Universitat Kiel, Hospitalstrasse 40, 2300 Kiel, W. Germany
Therapiewoche; 32(6):692,695-698 1982

Ultrasonography (US) was used to evaluate the scrotal contents of 109 patients with palpable abnormalities. US was performed by means of a mechanical sector scanner with an integrated water coupling cushion. Real-time imaging was obtained with a US frequency of 3.5 megahertz. The range of optimal resolution began at the surface of the scrotal skin. In most cases the entire scrotal content was demonstrated by a single scan. Normal testicular tissue was marked by a homogeneous, finely granular structure of medium echo density. Patterns of coursely nodular structure with areas of high and low echo density indicated possible tumors. Suspected tumors were detected in 22 patients and confirmed surgically in 17 cases. Two tumors detected by US were not palpable. Paratesticular lesions, including hydrocele (46 cases), epididymitis (22 cases), and varicocele (7 cases) were clearly distinguished from intratesticular lesions. Combinations of paratesticular and intratesticular lesions were found in 10 patients. US did not allow differentiation of malignant and benign alterations of scrotal structures. US was found suitable for noninvasive detection of all types of scrotal abnormalities. No contraindications were found. (17 Refs) (In GER)

HEAD AND NECK TUMORS

35. USE OF INFRARED THERMOVISION IN THE DIAGNOSIS OF THYROID CANCER IN ADULTS.

Stavratjev M, Plsek J
Vedecko metodicke stredisko techniky infracerveneho zareni, Lakarska fakulta UJEP, Leninova 7/9, 602 00 Brno, Czechoslovakia
Vnitr Lek; 28(2):109-115 1982

Four hundred and eighteen adult patients with thyroid disease were subjected to infrared thermovision examinations. Thyroid scintigraphy with 99mTc revealed scintigraphically cold adenomas in 291/418 patients. The benign nature and solid structure of the tumor was confirmed in 274/291 patients by histological examination (in 224 cases) and by strumectomy and histological examination (in 50). In the other 17/291 patients strumectomy and histological examination revealed thyroid carcinoma. Infrared thermovision examinations showed a temperature of 31.6 + 1.5 C (confidence limits 31.3-31.9 C) in the patients with thyroid adenomas and 33.2 + 1.1 C (confidence limits 32.3-33.6 C) in those with thyroid carcinomas. The infrared thermographic findings were false positive in 8% of the scintigraphically cold benign adenomas. No false negative findings were obtained in any of the patients with thyroid cancer. (13 Refs) (In CZE)

36. BONE AND LUNG METASTASES OF THYROID CANCER ON THE BASIS OF X-RAY EXAMINATIONS.

Liszka G, Csato Zs, Decker A, Rado J
Orszagos Onkologiai Intezet, Budapest, Hungary
Magy Onkol; 26(1):59-65 1982

Forty-six patients (17 men and 29 women) with thyroid carcinoma, who were free from metastases at the time of diagnosis of the disease, and subsequently developed bone and/or lung metastases, were followed up radiologically. Differentiated (follicular or papillary) carcinoma was diagnosed in 26 patients (7 men and 19 women), anaplastic carcinoma in 20 (10 men and 10 women). Nineteen patients (9 with differentiated and 10 with anaplastic carcinomas) developed lung metastases only, 22 (15 with differentiated and 7 with anaplastic carcinomas) bone metastases only, while 3 patients developed bone and lung metastases, and another developed bone and mediastinal lymph node metastases. The av time elapsed between surgery and the appearance of the first pulmonary metastasis was 69.33 mo for the patients with differentiated carcinoma and 7.22 mo for those with anaplastic carcinoma. The av survival time after surgery was 112. 57 mo for the patients with differentiated carcinomas and 9.44 mo for those with anaplastic carcinomas. The av time elapsed between surgery and the appearance of the first bone metastasis was 77.60 mo for the patients with differentiated carcinomas and 4.67 mo for those with anaplastic carcinomas. The av survival times after surgery were 111.46 mo for the patients with differentiated carcinomas and 13.00 mo for those with anaplastic carcinomas. (20 Refs) (In HUN)

HEMATOPOIETIC, RETICULOENDOTHELIAL AND LYMPHATIC TUMORS

37. COMPLEX X-RAY DIAGNOSIS OF HODGKIN'S DISEASE IN CHILDREN.

Tsyplenkov VG
Children's Roentgenologic Dept., Res. Roentgenoradiological Inst., Moscow, USSR
Vestn Rentgenol Radiol; (1):71-77 1982

The role of x-ray examination in evaluation of the degree of Hodgkin's disease (HD) dissemination below the diaphragm was studied in 200 children. The x-ray findings were compared with the results of direct lymphography, radioisotope examination of the kidneys, liver, and lymphatic system, and the results of explorative laparotomy with splenectomy. Examination of the gastrointestinal system showed tumoral-ulcerative changes of the stomach, duodenum, small intestine, and large intestine in 7%, 3.5%, 9%, and 1.5% of the patients, respectively. Infiltrative changes in the stomach, duodenum, and small intestine were observed in 29%, 13%, and 23% of the patients, respectively. Indirect (contact) deformation of the stomach, duodenum, small intestine, and large intestine was recorded in 35%, 5%, 13.5%, and 6% of the patients, respectively. Examination of the urinary system showed tumoral changes of the kidneys in 4.5% of the patients, deformation of the ureters in 23%, and deformation of the bladder in 1%. In total, involvement of organs below the diaphragm (Stage IV HD) was diagnosed in 43% of the patients, compared with 29% at direct lymphography and 38% at explorative laparotomy. (17 Refs) (In RUS)

38. ROENTGENOGRAPHIC ASPECTS OF NON-HODGKIN'S LYMPHOMAS PRESENTING WITH OSSEOUS LESIONS.

Spagnoli I, Gattoni F, Viganotti G
Dept. Radiology, Natl. Cancer Inst., Milan, Italy
Skeletal Radiol; 8(1):39-41 1982

Cases of all patients with non-Hodgkin's lymphoma (NHL) treated at the National Cancer Institute of Milan, Italy, during the period 1968-1977, were assessed for incidence of bone involvement. Radiographs taken from a total of 992 previously

untreated patients indicated bone involvement in 61 cases. Of the 61 patients, 10 showed only single bone involvement and were classified as primary NHL of bone. The remaining 51 patients showed involvement of more than one bone or of one affected bone plus lymph node and/or visceral lymphomatous lesions. Results indicated that primary lymphoma of bone prefers the appendicular skeleton, especially the femurs, while the axial skeleton is more affected when the disease has spread. Osteolysis was the principal radiological sign, being present in more than two thirds of the cases examined. This lesion type unfortunately gives no specific sign of its lymphomatous nature. Roentgenographic evidence indicate that cortical destruction or soft tissue involvement has an adverse prognostic value. Although bone involvement in previously untreated NHL is an uncommon presenting sign, these results indicate that such involvement is sufficiently frequent to justify routine skeletal x-ray survey during initial staging. (12 Refs)

39. RADIOGRAPHY AND BONE SCINTIGRAPHY IN MULTIPLE MYELOMA: A COMPARATIVE ANALYSIS.

Ludwig H, Kumpan W, Sinzinger H
Div. Diagnostic Radiology, Univ. Vienna, Vienna, Austria
Br J Radiol; 55(651):173-181 1982

The sensitivity of radionuclide imaging for detecting skeletal lesions was compared with that of radiography by evaluating 573 different anatomical sites in 41 patients with multiple myeloma. Radiography revealed a significantly greater number of myeloma-related bone lesions than did radionuclide imaging. Of the 179 myeloma-related bone lesions detected when both techniques were applied, 163 were seen by radiography and 82 by radionuclide imaging. Ninety-seven lesions were detected by radiography alone and 16 lesions seen by scintiscanning only, yielding a sensitivity of 91% for the former and and of 46% for the latter technique. Radionuclide imaging proved superior to radiography only occasionally in the rib cage, and rarely in other anatomical sites. These findings suggest that radiography is the method of first choice in obtaining a skeletal survey in patients with multiple myeloma. In cases with continued pain, unexplained by standard radiography, the skeletal survey should be supplemented by tomography and radionuclide imaging. (Author abstract) (15 Refs)

MUSCULOSKELETAL TUMORS

40. RADIOLOGICAL AND SCINTISCAN DIAGNOSIS AND FOLLOW-UP IN PLASMOCYTOMA.

Brassow F, Crone-Munzebrock W
Radiologische Klinik, Universitatskrankenhaus, Hamburg-Eppendorf, Martinistrasse 52, 2000 Hamburg 20, W. Germany
Roentgenblaetter; 35(2):49-53 1982

Results of conventional x-ray (CXR) and scintigraphy (SG) of 32 patients (22 men and 10 women, 54-70 yr old) with bone involvement by plasmocytoma were compared. Single bone lesions were found in 6 patients and multiple lesions in 26 patients. SG was performed 2-4 hr after iv injection of 10-20 mCi radionuclide containing 99mTc. All patients received high-voltage therapy for at least one lesion. CXR and SG were repeated 3-6 mo after irradiation. SG detected accumulations of tracer in 85% of lesions detected by CXR; the extent of 30% of these lesions was underestimated by SG. SG failed to detect 15% of lesions detected by CXR. Fractures were detected in 37 cases by CXR. SG indicated extreme accumulations of tracer in only eight fractures and did not indicate any abnormality in six fractures. Of 12 fractures detected by CXR, SG indicated distinct increases in tracer activity in 8 cases and slight increases in 4 cases. In 32 patients with a total of 37 lesions treated by high-voltage therapy, CXR did not detect changes in the irradiated field. SG showed reductions in tracer activity, indicating tumor regression in 34 lesions; increases in tracer activity, indicating tumor progression, were detected in 3 patients. New occurrences of bone lesions were detected in 14 cases by SG and confirmed by CXR. Five new lesions were detected by CXR but not by SG. SG evidently cannot replace CXR for diagnosis of bone lesions resulting from plasmocytoma, but is of value in monitoring response to therapy. (9 Refs) (In GER)

41. RADIOGRAPHIC FEATURES OF OSSEOUS METASTASES OF SOFT-TISSUE SARCOMAS.

Wong WS, Kaiser LR, Gold RH, Fon GT
Dept. Radiological Sciences, Univ. California Los Angeles Center for Health Sciences, Los Angeles, CA, 90024
Radiology; 143(1):71-74 1982

In contrast to most other neoplastic processes of bone, in our study osseous metastases from soft-tissue sarcomas (STS) were more reliably detected by radiography than by scintigraphy. The radiographic manifestations of 65 skeletal metastases in 23 patients with STS were reviewed. Although most metastases (88%) were osteolytic, eight (12%) lesions were osteoblastic. The destructive patterns were geographic in 29%, moth-eaten in 55%, and permeative in 12% of the lesions. The axial skeleton was most commonly involved. In the long bones the diaphyses were the predominant sites of involvement. The bony cortex was frequently breached, with resultant soft-tissue swelling and pathologic fractures. Noteworthy features included subarticular location, involvement of the sacroiliac joint, and an expansile appearance. (Author abstract) (19 Refs)

42. THE ADVANTAGES OF LYMPHOGRAPHY IN MALIGNANT MELANOMA.

Trigalo I, Courthalac F, Desprez-Curely JP, Banzet P
Service de Radiotherapie, Hopital Saint-Louis, 2, place du Docteur Alfred-Fournier, 75475 Paris Cedex 10, France
Sem Hop Paris; 58(11):687-692 1982

The authors report the results of their observations on 27 cases of malignant melanoma having undergone lymphography. They insist on the absence of risk of this examination causing diffusion of the primary tumor and the advantages of lymphography in this particular case: clinically palpable metastatic adenopathy and high risk malignant melanoma without palpable adenopathy. (Author abstract) (14 Refs) (In FRE)

RESPIRATORY TUMORS

43. PERFUSION AND VENTILATION LUNG SCANNING IN THE PREOPERATIVE EVALUATION ON BRONCHOGENIC CARCINOMA.

Brune J, Munsch R, Gamondes J, Wiesendanger T, Serain F

Service de Broncho-pneumologie, Hopital Cardio-Vasculaire et Pneumologique, B.P. Lyon-Monchat, Lyon, France

Ann Chir; 36(2):95-101 1982

Ninty-five patients with primary bronchial cancers were evaluated preoperatively with ventilation and perfusion scintigraphy (VPS). Radiologically, there were 26 peripheral cancer and 70 central cancers which had invaded the pulmonary vessels. Histological examination revealed 72 squamous cell carcinomas (75%), eight undifferentiated small cell carcinomas (10.4%), and two adenocarcinomas (2.1%). In four cases, the histological type was not established. The most common surgical procedures were pneumonectomy (34), and lobectomy (14). In 25/61 cases treated surgically, ganglionic mediastinal metastases were found. In 70/96 cancers studied, circulatory problems were superimposed on ventilation difficulties. In 21 patients, the circulatory problems were more involved than the ventilation problems. Scintigraphy alone was not able to demonstrate the exact perfusion obstruction mechanism. In 44/95 patients (46.3%), the results of VPS were normal outside the tumor zones. In 51 cases, pathologic results were obtained and 80% of these cases (41) presented wash-in distribution difficulties and problems with blood distribution accompanied by trapping at wash-out. In order to make diagnostic and therapeutic decisions concerning bronchial cancer, it is recommended that the results of VPS be correlated with radiographic and endoscopic findings. (11 Refs) (In FRE)

SELECTED PRE-CLINICAL STUDIES

44. ALTERATION OF GALLIUM DISTRIBUTION IN THE RAT USING PERIODICALLY RELATED ELEMENTS. ENHANCED EARLY IMAGING.

Triplett JW, Bourne DW, Kin EE, Gautam SR, McWhorter LK, Deland FH

(c/o Kim) Radiology Dept., Univ. Texas Medical Sch., 6431 Fannin, Houston, TX, 77030

Acta Radiol Oncol Radiat Phys Biol; 20(6):365-371 1981

Complexes of carrier-gallium and indium were administered to normal rats and rats with tumors 2 to 6 hr after an injection of carrier-free 67Ga citrate in order to determine their effect on the distribution of 67Ga. Both Ga and In rapidly and significantly decreased the blood activity. Imaging with the same dosage schedule showed decreased activity in soft tissue and viscera, and increased activity in bone, kidney, and bladder. In animals with tumors high doses of carrier-Ga were shown to deplete tumor activity as well as activity in viscera and soft tissues. Moderate doses of carrier-Ga allowed blood and soft tissue clearing with no significant loss of tumor activity. When In citrate was administered to animals with tumors 2 hr after administration of 67Ga, tumor activity continued to increase while soft tissue and visceral activity decreased. Simultaneous injection of In citrate and 67Ga drastically altered the distribution of 67Ga. Two hr after the injection activity was present only in the tumor, kidney, bladder, and bone. This rapid clearance of non-productive Ga brings forth the potential for use of short lived, positron emitting 67Ga coupled with emission tomography. (Author abstract) (25 Refs)

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COMPUTER ASSISTED TOMOGRAPHY

1. COMPUTERIZED TOMOGRAPHIC FINDINGS IN MEDULLOBLASTOMAS.

Weisberg LA
Tulane Medical Center, New Orleans, LA, 70112
Comput Radiol; 6(2):83-91 1982

Computerized tomography (CT) was performed in 20 patients (8 female, 12 male; 11 mo -23 yr old) with intracranial medulloblastomas (MB). All presented with headache, 13 with vomiting, 12 with gait instability, 6 with double vision, 3 with lethargy, and 1 with dysphagia. Average duration of symptoms prior to diagnosis of MB by CT was 8 wk (range 4-16 wk). Neurological findings are given, and the pattern of neurological dysfunction correlated well with location of the MB. In 16 cases the MB appeared as a posterior fossa midline lesion, and in 4 cases it was located laterally. Obstructive hydrocephalus was universal. Non-contrast CT showed 14 of the cases to be hyperdense (only 1 with calcification) and 6 to be isodense. Subsequent post-contrast CT showed enhancement in all cases, 18 homogeneous and 2 ring-patterns. All cases showed third and lateral ventricular dilatation, and abnormalities of the

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fourth ventricle. A surrounding hypodense rim was seen in 12 cases. (7 Refs)

2. COMPUTED TOMOGRAPHIC DEMONSTRATION OF THE EFFECTS OF BROMOCRIPTINE ON PITUITARY MICROADENOMA SIZE.

Bonneville JF, Poulignot D, Cattin F, Couturier M, Mollet E, Dietemann JL

Dept. Neuroradiology, Univ. Hosp. Besancon, 25030 Besancon, France

Radiology; 143(2):451-455 1982

A group of 17 strictly intrasellar prolactin-secreting pituitary adenomas between 2 and 9 mm in size was examined by computed tomography before and after bromocriptine therapy of 3 mo to 1 yr duration. These findings were compared with clinical and biological data. Bromocriptine therapy was effective clinically and biologically in 14 of the 17 cases. Of the 15 intrasellar adenomas in nonpregnant patients treated with bromocriptine, 6 disappeared completely with normalization of the pituitary appearance, 5 decreased approx 50% in volume, (3 showed an increase in density, 2 a decrease), and 4 remained unchanged in size (2 showed increased density, 2 showed very low densities). (Author abstract) (13 Refs)

3. THE EARLY DETECTION OF ANTRAL MALIGNANCY IN THE POSTMAXILLECTOMY PATIENT.

Som PM, Shugar JM, Biller HF

Dept. Radiology, Mount Sinai Hosp., One Gustave Levy Place, New York, NY, 10029

Radiology; 143(2):509-512 1982

A protocol was developed for the radiographic evaluation of the postmaxillectomy patient that called for a 6-to 8-wk postoperative, baseline computed tomography (CT) scan, followed by CT scans at 4-to 6-mo intervals after at least 3 yr. This protocol allowed for an early, more complete assessment of clinically discovered recurrences and the detection of clinically occult recurrences in 3 out of 18 patients who followed the protocol. The CT appearance of the normal partial and total maxillectomy is discussed, as well as the focal nodular soft-tissue findings suggestive of recurrent disease. (Author abstract) (4 Refs)

4. COMPUTED TOMOGRAPHY OF GASTRIC LYMPHOMA.

Buy JN, Moss AA

(c/o Moss) Dept. Radiology, M-396, Univ. California, Sch. Medicine, San Francisco, CA, 94143

AJR; 138(5):859-865 1982

The CT features in 12 patients with gastric lymphoma, 4 primary and 8 secondary, were analyzed, correlated with other diagnostic studies, surgery, and pathologic features, and compared with the CT findings in 22 patients with gastric adenocarcinoma. An abnormally thickened gastric wall (mean, 4.0 cm) was found in all patients with gastric lymphoma. Lymphomas of the stomach often involved more than one region of the stomach (83%). The contour of the outer gastric wall was smooth or lobulated in 42%, perigastric lymph adenopathy was common (58%), extension into adjacent organs was found in 42%, and 42% had lymphadenopathy at or below the renal pedicle. (Author abstract) (34 Refs)

5. DYNAMIC CT OF HEPATIC MASSES WITH INTRAVENOUS AND INTRAARTERIAL CONTRAST MATERIAL.

Moss AA, Dean PB, Axel L, Goldberg HI, Glazer GM, Friedman MA
Dept. Radiology, S-358, Univ. California, San Francisco, San Francisco, CA, 94143

AJR; 138(5):847-852 1982

Seven patients with primary and metastatic hepatic tumors had dynamic computed tomographic scans obtained after an intravenous and an intrahepatic arterial bolus of contrast media. Four patients had hepatoma and three had hepatic metastasis from either a colonic, pancreatic, or leiomyosarcoma primary malignancy. Computed tomography was also performed after an intravenous drip infusion of contrast material. Time-density curves of the hepatic lesions after contrast administration were analyzed and compared. The results demonstrated that (1) intrahepatic arterial delivery of contrast fluid resulted in the greatest contrast enhancement of lesions and detected more lesions than the intravenous bolus technique, which was superior to the drip infusion technique; (2) no consistent difference in the pattern of contrast enhancement was found between various hepatic lesions; (3) within multiple lesions of similar pathology in any one liver, a spectrum of contrast enhancement pattern was found; and (4) changes in contrast enhancement occurred rapidly and lesions changed from hypodense to isodense to hyperdense to isodense within 30-45 sec. (Author abstract) (11 Refs)

6. COMPARISON OF PRE- AND POSTCONTRAST CT IN HEPATIC MASSES.

Berland LL, Lawson TL, Foley WD, Melrose BL, Chintapalli KN, Taylor AJ
Dept. Radiology, Medical Coll. Wisconsin, Milwaukee County Medical Complex, 8700 W. Wisconsin Ave., Milwaukee, WI, 53226

AJR; 138(5):853-858 1982

A comparison of hepatic computed tomography (CT) before and after administering intravenous contrast material was performed 85 times on 81 patients suspected of having hepatic mass lesions. Both pre- and postcontrast computed tomography were sensitive and specific in over 88% of cases, with no statistical difference in accuracy between the techniques. However, postcontrast scans were generally preferred because of increased diagnostic confidence and improved characterization of associated abnormalities. The recent advent of rapid sequential scanning after intravenous administration of a large volume of contrast material seems to further improve diagnostic confidence. When high-resolution CT equipment is used, postcontrast CT alone is the preferred method for CT evaluation of patients with suspected liver lesions. (Author abstract) (10 Refs)

7. COMPUTERIZED TOMOGRAPHY: HOW ACCURATE FOR ABDOMINAL STAGING OF TESTIS TUMORS?

Richie JP, Garnick MB, Finberg H
75 Francis St., Boston, MA, 02115

J Urol; 127(4):715-717 1982

To assess the ability of computerized tomography to predict correctly the presence of retroperitoneal lymphadenopathy, a prospective study was performed on 30 patients with all stages of testis tumor. All patients underwent a computerized tomography scan within 1 wk before retroperitoneal lymphadenectomy and the results then were correlated with gross and histologic findings. The computerized tomography scan suggested retroperitoneal lymphadenopathy in 14 patients, in 1 of whom

no retroperitoneal lymphadenopathy was found at exploration (false positive, 7%). The sensitivity (computerized tomography positive divided by true positive) was 65% and the specificity (computerized tomography negative divided by true negative) was 90%, for an over-all accuracy of 73%. Most importantly, however, 7 of the 16 computerized tomography scans (44%) interpreted as normal proved to be false negative. Of these seven scans five were in patients with tumors classified as Stage B2 or greater. We conclude that the computerized tomography scan, when positive, is highly likely to detect metastatic nodal involvement. However, the false negative rate, even in patients with tumor-filled lymph nodes 2 to 3 cm in diameter, limits the reliability of a negative computerized tomography scan to exclude metastases. Technological improvements are needed to refine the technique and, thus, to reduce the false negative rate. (Author abstract) (17 Refs)

BREAST TUMORS

8. RADIOLOGY AND DETECTION OF BREAST CANCER.

Zalcman R
Service de Radiologie, Centre Hospitalier Joseph Bracops, Bruxelles, Belgium
Rev Med Brux; 3(2):85-86 1982

Utility and safety of radiographic examinations for detection of breast cancer are discussed. For breast tumors of 0.5 cm or less the survival rate is 93%. Lymphatic metastases are present in 13% of 0.5-2 cm tumors and in 71% of those greater than 2 cm. Thus the chances for survival are greater in patients in whom tumors are detected early. In one study of 17,000 women, 183 breast cancers were detected. Of the 41 cancers, less than 0.5 cm, 93% were visible radiographically while only 9% were palpable. Of tumors 0.5-1 cm (33 cases), 1-2 cm (59), and greater than 2 cm (50), 70%, 80%, and 85%, respectively, were detectable radiographically while 40%, 50%, and 90%, respectively, were palpable. Of 139 breast tumors detected in a study of 16,000 women, greater than 45% were detectable only by radiography. In another study of 271,000 women, 106 of 246 breast cancers were detected only by radiography. Although the risk of cancer increases as a function of dose for doses of 100 rads or more, the risk/benefit analysis for breast radiography favors the use of low dose radiography for early detection of breast cancer. The frequency of breast radiography for various age groups is discussed. (12 Refs) (In FRE)

9. SINGLE OBLIQUE-VIEW MAMMOGRAPHY FOR PERIODIC SCREENING FOR BREAST CANCER IN WOMEN.

Lundgren B, Helleberg A
Mammography Dept., Gavle Hosp., S-801 17 Gavle, Sweden
JNCI; 68(3):351-355 1982

A population, originally 6,845 women, 40 years of age and over, was screened for breast cancer by single oblique-view mammography in 1974, and 1980. Of the 5,789 women remaining in their parish in 1980, 94% had attended the screening at least once. Of 111 breast cancers diagnosed in the 6.25-year study period, 78% were detected at screening, 15% as interval cancers, and 7% among nonresponders. Sixty-three percent of the women had tumors in clinical Stage I, and 59% had tumors less than or equal to 10 mm. The predictive value for biopsy recommendations by mammography was 78%. This method was considered very suitable for screening. In the older age groups there was probably some overdiagnosis of cancers that would never have become symptomatic. (Author abstract) (13 Refs)

10. NONPALPABLE BREAST LESIONS: MAMMOGRAPHIC WIRE-GUIDED BIOPSY AND RADIOLOGIC-HISTOLOGIC CORRELATION.

Blichert-Toft M, Dyreborg U, Bogh L, Kiaer H
Dept. Surgery K, Odense Univ. Hosp., DK-5000 Odense C, Denmark
World J Surg; 6(1):119-125 1982

Of 2,909 women undergoing mammography, 44 were found to have a total of 45 impalpable breast lesions thought to represent early cancer. Mammographic wire-guided breast biopsy was performed on these 44 women with the aid of a self-retaining hook wire for marking the lesion. The usual mammographic compression plate was replaced with one with coordinated perforations through which the wire, inside a needle, was introduced through or into the lesion under mammographic control. The needle was removed, leaving the hooked wire in place. Then, excisional biopsy was performed by a surgeon under general anesthesia. The biopsy specimen was excised with the wire hook in situ. The wire was in or through the lesion in 33/45 cases (74%), was within 1 cm in 10/45, and was more than 1 cm way in 2/45. One excision was necessary in 35/45 cases (78%), two in 7/35, three in 2/45, and five in 1/45. The lesions were missed on the first attempt probably because of displacement of the wire during surgical manipulation. There were no complications, and cosmetic results were excellent. Malignancy was detected in 13/45 biopsies (29% of biopsies, 30% of patients), and metastatic lymph nodes in 2/12 carcinomas. Benign conditions were noted in the other 32 specimens. This technique may be of benefit in early detection of breast cancer. (35 Refs)

11. GENEROUS EXCISIONAL BREAST BIOPSY AND SPECIMEN RADIOGRAPHY FOR MICROCALCIFICATIONS DETECTED BY MAMMOGRAPHY (MEETING ABSTRACT)

Prorok JJ, Trostle D, Rachman R, Scarlato M, Hartzell GW, Gittleman MA
Allentown and Sacred Heart Hospital Center, Allentown, PA, 18105
Proc Am Soc Clin Oncol; 1:C-269 1982

Sixty-two women had generous excisional breast biopsy for microcalcifications detected by mammography with no associated palpable mass. Carcinoma was discovered in twenty patients (32%). Seven (35%) had multicentric carcinomas, including one synchronous bilateral lobular carcinoma. Axillary metastases were present in three patients (15%), each with multicentric lesions. Chronic cystic mastopathy (55%) was the most common finding associated with microcalcifications. In six patients (30%) with carcinoma, the microcalcifications were present only in adjacent tissue and ducts. Generous excisional biopsy, verification of the microcalcifications by specimen radiography, and thorough histologic examination by paraffin section are mandatory to detect these early and potentially curable breast carcinomas. (no Refs)

12. OBSERVER VARIATION IN THE INTERPRETATION OF XEROMAMMOGRAMS.

Boyd NF, Wolfson C, Moskowitz M, Carlile T, Petitclerc M, Ferri HA, Fishell E, Gregoire A, Kiernan M, Longley JD, Simor IS, Miller AB
Princess Margaret Hosp., 500 Sherbourne St., Toronto, Ontario M4X 1K9, Canada
JNCI; 68(3):357-363 1982

We have examined variation in the interpretation of xeromammograms among radiologists designated to take part in a Canadian multicenter randomized controlled trial of screening for breast cancer. Radiologists read 100 xeromammograms comprising 10 histologically proved cancers, 40 benign abnormalities, and 50 normal films. Radiologists' opinions differed widely on the frequency of suspected or identified cancer. The diagnostic category 'suspicion of cancer' or 'cancer' was selected by radiologists for 10-55% of the films, and biopsy of aspiration was recommended for 21 to 53% of patients whose films were examined. Agreement on specific diagnostic categories was greatest for the diagnosis of cancer; agreement was least for the diagnosis of benign abnormalities and intermediate for the diagnosis of normality. Known cancers were in general correctly identified. These results indicate a need for development of methods to reduce observer variation in the interpretation of xeromammograms while preserving diagnostic sensitivity and validity. Results also emphasize the importance of developing strategies to ensure quality control in multicenter trials. (Author abstract) (11 Refs)

13. ULTRASONIC EXAMINATION OF THE BREAST.

Friedrich M
Klinik fur Radiologie, Nuklearmedizin und Physikalische, Therapie Klinikum Steglitz der Freien Univ., Hindenburgdamm 30, 1000 Berlin 45, W. Germany
Dtsch Med Wochenschr; 107(9):341-345 1982

Ultrasonic examination of the breast is discussed with regard to methodologic considerations, types of diagnostic information obtained, value, and indications. The sensitivity of ultrasonography in detecting malignant tumors is compared with that of mammography; the complementary nature of these procedures is considered. Ultrasonic examinations can be used to confirm diagnosis or add to information obtained by mammography. Additional uses include examinations of young or pregnant women with palpable breast nodules, disease-course control in patients with fibrocystic mastopathy, examination of patients who refuse to undergo mammography, examination of patients with breast prostheses that interfere with mammographic results, and differentiation of cystic, solid, or combination changes of the breast (including those produced by malignancies). (24 Refs) (In GER)

GASTROINTESTINAL TUMORS

14. THE RADIOGRAPHIC FEATURES OF SMALL COLON CANCERS.

Skucas J, Spataro RF, Cannucciari DP
Dept. Diagnostic Radiology, Univ. Rochester Medical Center, Rochester, NY
Radiology; 143(2):335-340 1982

The commonly accepted criteria for colon malignancy were investigated in malignant and benign polyps smaller than 3 cm in diameter. It was found that most small tumors, both benign and malignant, were sessile and smooth in outline. It was only when the polyps increased in size that their outlines became lobulated or irregular. A stalk was not seen in polyps smaller than 1 cm in diameter. Retraction at the base of a cancer was likewise not seen in these small lesions. The typical malignant characteristics became apparent only when the polyp had grown to 2 to 3 cm in diameter. (Author abstract) (23 Refs)

15. REAL-TIME SCANNING AS AN ADJUNCT TO CONVENTIONAL HEPATIC SONOGRAPHY.

Eftekhari F, Barnes PA, Thomas JL, Bernardino ME
Dept. Diagnostic Radiology, Univ. Texas Cancer Center, M.D. Anderson Hosp. and Tumor Inst., Texas Medical Center, Houston, TX, 77030
Tex Med; 78(5):61-66 1982

We used real-time ultrasonography and B-scanning to examine nine patients - each of whom had primary neoplastic disease - for hepatic disease or for evaluation of therapy for metastatic disease. At least one lesion not detected by B-scan was found in each of the patients by real-time scanning, and in five patients with normal B-scans, real-time scanning revealed focal lesions. Three brief case reports illustrate the effectiveness of combining real-time ultrasonography and B-scanning in the diagnosis of selected cases. (Author abstract) (10 Refs)

GENITOURINARY TUMORS

16. RENAL TRANSITIONAL CELL CARCINOMA: SONOGRAPHIC AND PATHOLOGIC CORRELATION.

Subramanyam BR, Raghavendra N, Madamba MR
Dept. Radiology, New York Univ. Medical Center, 560 First Ave., New York, NY, 10016
JCU; 10(5):203-210 1982

Sonography was utilized to assess six patients with renal transitional cell carcinoma and was correlated with gross pathology in five cases. The neoplasms were seen in discrete, solid massess causing separation of the central renal sinus echoes. The echogenicity of the tumors and the renal parenchyma was similar, but the neoplasms were separated from the renal parenchyma by a linear echogenic zone of renal sinus fat. Pelvicaliceal blood clots, when markedly echogenic, could be differentiated from transitional cell carcinomas. Sonography contributed most in evaluating unilateral nonvisualized kidney or in the presence of nonfilling of the affected pelvicalices on excretory urography. (Author abstract) (7 Refs)

17. CORRELATION OF SERUM TUMOR MARKERS AND LYMPHANGIOGRAPHY WITH DEGREES OF NODAL INVOLVEMENT IN SURGICAL STAGE II TESTIS CANCER.

Vugrin D, Whitmore WF, Nisselbaum J, Watson RC
Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
J Urol; 127(4):683-684 1982

There were 60 patients at our cancer center who underwent serum tumor marker studies (beta subunit of human chorionic gonadotropins and alpha-fetoprotein) and pedal lymphangiography before retroperitoneal lymph node dissection. Surgical stage II cases were divided according to tumor, node and metastasis staging. Beta-human chorionic gonadotropin and/or alpha-fetoprotein was elevated in 9% (1/11) of the N1 cases,

36% (5/14) of the N2A cases, 50% (13/26) of the N2B cases and 89% (8/9) of the N3 cases. Lymphangiography was positive or suspicious in 9% (1/11) of the N1 cases, 36% (5/14) of the N2A cases, 46% (12/26) of the N2B cases and 56% (5/9) of the N3 cases. Serum tumor markers and lymphangiography combined suggested lymph node metastases in 18% (2/11) of the N1 cases, 50% (7/14) of the N2A cases, 73% (19/26) of the N2B cases and 100% (9/9) of the N3 cases. We conclude that tumor markers and lymphangiography measurements are equally effective in the diagnosis of retroperitoneal lymph node metastases and that diagnostic accuracy is enhanced significantly by combining these 2 modalities. Retroperitoneal lymph node dissection remains the most reliable staging procedure. Reports on the accuracy of clinical staging should be correlated with subcategories of stage II disease. (Author abstract) (8 Refs)

HEAD AND NECK TUMORS

18. BARIUM EXAMINATION OF THE ESOPHAGUS AFTER TOTAL LARYNGECTOMY.

Balfe DM, Koehler RE, Setzen M, Weyman PJ, Baron RL, Ogura JH
Mallinckrodt Inst. Radiology, Washington Univ. Sch. Medicine, 510 South Kingshighway, St. Louis, MO, 63110
Radiology; 143(2):501-508 1982

Barium examination of the esophagus is often useful for evaluating the cause of dysphagia, a frequent condition in patients who have undergone total laryngectomy. The examination may be difficult to interpret, however, because a variety of anatomic changes may be produced by radiation, infection, fistula, recurrent tumor, or the operation itself. Radiographic and clinical information on 45 total-laryngectomy patients, whose follow-up periods ranged from 6 mo to 17 yr, were analyzed. A recurrent tumor was found in 15 patients and was evident radiographically as a mass deviating the neopharynx in 14. Benign strictures in 14 patients appeared either as as a long symmetrical narrowing or as a very short, weblike narrowing. Fistulas were demonstrated in 13 patients and presaged the development of recurrent tumors in five. Cricopharyngeal muscular dysfunction accounted for dysphagia in five cases. An understanding of these patterns leads to more accurate interpretation of the postoperative barium examination of the esophagus, and the radiographic findings often indicate the correct diagnosis with a high degree of confidence. (Author abstract) (13 Refs)

MUSCULOSKELETAL TUMORS

19. RADIOGRAPHIC CHANGES IN PRIMARY OSTEOGENIC SARCOMA FOLLOWING INTENSIVE CHEMOTHERAPY. RADIOLOGICAL-PATHOLOGICAL CORRELATION IN 63 PATIENTS.

Smith J, Heelan RT, Huvos AG, Caparros B, Rosen G, Urmacher C, Caravelli JF
Dept. Radiology, Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Radiology; 143(2):355-366 1982

Sixty-three patients with osteogenic sarcoma of the long bones, all of whom were treated with chemotherapy, demonstrated striking and unusual radiographic changes. Patients with a 'good' radiographic response (48%) showed the most dramatic changes, including medullary sclerosis, prominent periosteal new bone formation, and disappearance of the soft-tissue mass; these findings correlated well with the histological grading of the surgical specimens. Radiographic evaluation of patients receiving chemotherapy for osteogenic sarcoma is a valuable method of assessing response. (Author abstract) (15 Refs)

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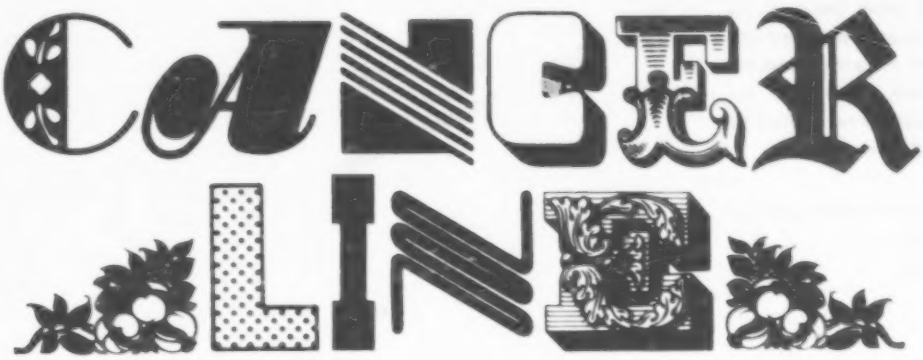

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COMPUTER ASSISTED TOMOGRAPHY

1. COMPARATIVE DOSIMETRY OF HIGH-DETAIL COMPUTED TOMOGRAPHY USING THE SIEMENS SOMATOM-2 AND COMPLEX MOTION TOMOGRAPHY FOR EXAMINATION OF THE SELLA TURCICA.

Zwicker RD, Zamenhof RG, Wolpert SM
Dept. Therapeutic Radiology, Tufts-New England Medical Center, 171 Harrison Ave., Boston, MA, 02111
AJNR; 3(3):354-355 1982

Radiation dosage from hypocycloidal polytomography and high resolution computed tomography (CT) of the sella turcica for the diagnosis of pituitary microadenoma were compared using a was head phantom modeled on the Rando phantom head, neck, and shoulder sections along with thermoluminescent dosimeters (TLD). The TLD were calibrated for differences in the x-ray beam qualities. Exposure (in R) for polytomography and CT were, for the pituitary, 4.3 and 2.0, respectively; for the lens, 5.6 and 0.2; for the thyroid, 0 and 3.8; for the entrance skin, 12.9 and 3.8; and for the integral exposure, 2,000 and 1,300. Lens exposure in polytomography could be reduced by protective eye shields. Thyroid exposure in CT

HE 20.3173/2:

could be reduced by not allowing the gland to fall within the primary radiation field. CT exposures would be increased with a machine that was not dose-efficient. (4 Refs)

2. HIGH RESOLUTION COMPUTED TOMOGRAPHY OF THE SELLA.

Taylor S
St. Paul-Ramsey Medical Center, 640 Jackson St., St. Paul, MN, 55101
Radiol Clin North Am; 20(1):207-236 1982

Diagnosis of smaller sellar lesions using direct coronal scanning is discussed. Reformatting of multiple axial images always sacrifices some soft tissue and spatial resolution, both of which are critical to visualization of small lesions within the sella turcica. A single coronal slice includes all of the important relationships and interfaces between the sphenoid sinus, sellar floor, pituitary gland, suprasellar cistern, optic chiasm, and anterior recesses of the third ventricle. A well-performed direct coronal examination demonstrates details of the bony floor and clinoid processes better than thin-section tomography. Direct coronal positioning is discussed. The scan must be performed as quickly as possible both for patient cooperation and for maintenance of proper anatomic registration. Abnormality of the pituitary gland may be demonstrated by the height and size of the gland, contour of superior border, abnormal inhomogeneity, deviation of the pituitary stalk, and alterations of the bony floor or clinoid processes. Pathology discussed includes prolactinomas, nonsecreting adenomas, empty sella, pathology in anterior optic pathways, aneurysm, meningioma, craniopharyngiomas, metastases, infrasellar lesions, and osteitis. Large recurrences or residue of tumor may be detected and evaluated for extension and involvement of adjacent structures. Postoperative evaluation of smaller intrasellar tumors is difficult since residual tumor, normal pituitary gland, and granulation tissue may all have a similar appearence. Absence of any soft tissue within the pituitary fossa would exclude recurrent tissue. (26 Refs)

3. COMPUTED TOMOGRAPHY IN NEOPLASMS OF THE POSTERIOR FOSSA IN CHILDREN.

Segall HD, Zee CS, Naidich TP, Ahmadi J, Becker TS
Dept. Radiology, LAC-USC Medical Center, 1200 North State St., Los Angeles, CA, 90033
Radiol Clin North Am; 20(1):237-253 1982

Role of computed tomography (CT) in the diagnosis of neoplasms of the posterior fossa in children is discussed focusing on their CT appearances prior to treatment. Three major histologic types of neoplasms can be distinguished: medulloblastoma, astrocytoma, and ependymoma. Of 129 histologically verified tumors of the posterior fossa, 52 were medulloblastomas, 33 proven cerebellar and fourth ventricular astrocytomas, and 16 ependymomas. The commonest of the infrequent neoplasms was the mixed glioma, of which only three were verified. CT appearances of the three most common neoplasms of the cerebellum and fourth ventricle are discussed. Brainstem neoplasms account for a significant number of tumors of the posterior fossa in children. In order to maintain a high detection rate for these tumors, a thorough anatomical study of the posterior fossa must be done and all the nuances and subtleties of anatomy must be known. Most brainstem tumors present before much compromise of the aqueduct or fourth ventricle exists. Therefore, CT generally shows normal sized third and lateral ventricles when these patients are initially seen. Normal CT anatomy of the posterior fossa in children is described and CT evaluation and depiction of brainstem neoplasms in children and adolescents is discussed. Extra-axial neoplasms are rare within the posterior fossa among pediatric patients, but may include acoustic and trigeminal neurinomas, chordoma, dermoid, epidermoidoma, meningioma, metastatic neuroblastoma, and teratoma. (46 Refs)

4. MALIGNANT MENINGIOMAS: CT AND HISTOLOGIC CRITERIA, INCLUDING A NEW CT SIGN.

New PF, Hesselink JR, O'Carroll CP, Kleinman GM
Dept. Radiology, Harvard Medical Sch. Massachusetts General Hosp., Boston, MA, 02114
AJNR; 3(3):267-276 1982

The histologic and the computed tomographic (CT) features of malignancy in meningiomas were evaluated for 167 patients with meningothelial meningiomas and 250 patients with nonbasal supratentorial meningiomas. Histologic examination of the three malignant tumors showed two to three mitosis per 10 high power fields, as compared to one to two per 10 high power fields in the 145/167 patients whose tumors did not recur. In the CT series seven patients had malignant tumors, and 5/7 had high mitotic indices. From these cases and others reported in the literature malignant behavior was associated with irregular or indistinct tumor margins, especially with deeply penetrating tumor fringes, and with a 'mushrooming' pattern of tumor growth. This pattern, not previously described, was found in 5/7 cases, and is defined as pannus extension 2.5 cm or more long, extending over the cerebral surface from one or more aspects of the globoid part of the tumor. In addition striking and extensive low density areas within tumor suggested malignancy, while this finding in a small area of tumor suggested benignity. The latter was also suggested by the hypodensity on plain scan. (29 Refs)

5. NON-STEREOTACTIC CT GUIDED BRAIN BIOPSY (MEETING ABSTRACT)

Isler RJ, Altemus LR, Deming HR, Wilson DW, Brinkman CA, Mehalic TF
Department of Radiology, Maine Medical Center, Portland, ME, 04102
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A33 1982

CT (computerized tomography) guided aspiration and biopsy in the abdomen has substantially advanced the ability to diagnose neoplasms and abscesses with relative ease and safety. We have modified the conventional abdominal biopsy technique and have safely and successfully biopsied seven patients with brain lesions under CT guidance. The biopsy method, which is non-stereotactic, performed on a conventional body scanner, and utilizes a coaxial needle technique, is described in detail. Diagnoses include glioma, grade III astrocytoma, glioblastoma, histiocytic lymphoma, and three brain abscesses with identification of organisms. Two abscesses resistant to medical therapy were successfully drained by this method. All patients were awake and alert during biopsy and none suffered complications. (no Refs)

6. SMALL ACOUSTIC NEUROMAS: DETECTION BY HIGH RESOLUTION GAS CT CISTERNOGRAPHY.

Pinto RS, Kricheff II, Bergeron RT, Cohen N
Dept. Radiology, New York Univ. Medical Center, 560 First Ave., New York, NY, 10016
AJNR; 3(3):283-286 1982

Seventy-nine patients (81 examinations: 2 bilateral) were examined by air computed tomography cisternography (CTC) for acoustic neuromas using either a scanner with a 5 mm slice capability (61), or a scanner with a 1.5 mm slice capability (20) along with digital localization radiography and reconstruction zoom imaging. Air was used in some studies and filtered CO2 in others. Fifty-studies were normal, 22 demonstrated acoustic neuroma, and 4 were inconclusive (all on the 5 mm/slice scanner). Four of the tumors were purely intracanalicular. A ganglionitis mass lesion of the sensory ganglion of the 8th cranial nerve was also detected. The neurovascular bundle cisternal segment was seen in 40/55 normal scans, and the intracanalicular part was seen in 10/12 normal patients with reconstruction zoom. Headaches occurred after the procedure in 20/47 patients receiving air and in 3/34 receiving CO2. Gas CTC is the procedure of choice for diagnosis of a purely intracanalicular acoustic neuroma. (4 Refs)

7. COMPUTED TOMOGRAPHY IN EVALUATION OF THE PARANASAL SINUSES.

Bilaniuk LT, Zimmerman RA
Dept. Radiology, Hosp. Univ. Pennsylvania Sch. Medicine, 3400 Spruce St., Philadelphia, PA, 19104
Radiol Clin North Am; 20(1):51-66 1982

Computed tomography (CT) in the evaluation of the paranasal sinuses (PNS), approach to the lesions, technique, and types of PNS lesions, are discussed. Both CT and pluridirectional tomography (PT) are excellent techniques for detecting erosions of bone. PT reveals not only bony changes but also soft tissue masses in areas that are normally seen in profile because of the contrast between air and soft tissues. CT examination of PNS consists of a series of contiguous sections obtained in the axial and coronal planes. Rotation of patient's head must be avoided so that a section includes the same portion of each sinus, permitting comparison between two sides. CT is useful in a wide spectrum of PNS lesions; congenital or developmental abnormalities, trauma, inflammation, and neoplasms. Malignant tumors of PNS usually produce both a mass and bony destruction. While some inflammations produce both bony destruction and a mass, on occasion malignant tumors may mimic inflammation by producing sinus opacification without bony destruction. Lesions that expand or encroach upon the PNS by means of pressure erosion include mucoceles, cysts, polyps, neurinomas, neurofibromas, epidermoids and dermoids, aneurysms, pituitary adenomas, fibro-osseous lesions, and chordomas. Some of these may expand the PNS to such a degree and produce such thinning of bony walls that the expansile quality may be missed on conventional radiographic studies and a false diagnosis of destructive malignant tumor or inflammatory lesion is made. With CT the thin bony margin and the sharp interface with adjacent tissue is correctly demonstrated. CT findings should be interpreted in the framework of the clinical picture. (30 Refs)

8. THE USE OF CT SCANNING IN THE ASSESSMENT OF PATIENTS WITH PERSISTENT OR RECURRENT POSTOPERATIVE HYPERPARATHYROIDISM (MEETING ABSTRACT)

Sheedy PF, Brown LR, Van Heerden JA, Stephens DH, Edis AJ, Crowe JK
No affiliation given
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A230 1982

Persistent or recurrent hyperparathyroidism after adequate removal of abnormal parathyroid tissue in usual locations is a difficult problem. In these cases location must be considered and a common site is the anterior mediastinum. In the past, angiography and venous sampling were used to detect such lesions. These procedures are invasive, expensive and entail risk. Ultrasonography has been used to advantage in this situation but is not effective in the anterior mediastinum. CT (computerized tomography) has become a valuable method to diagnosis and exclude parathyroid lesions in the anterior mediastinum. We have evaluated more than 25 patients with persistent or recurrent hyperparathyroidism who were canidates for reoperation. In more than half of these, CT correctly localized the ectopic parathyroid tissue in the anterior mediastinum. In other cases CT failed to detect very small mediastinal tumors which were located within the thymus. The presentation will address the accuracy of CT mediastinal scanning for the detection of parathyroid adenoma, will demonstrate the CT findings in positive cases and will emphasize the limitations of the method in the detection of relatively small tumors. (no Refs)

9. CT DEMONSTRATION OF SUBCUTANEOUS VENOUS COLLATERALS.

Hidalgo H, Korobkin M, Breiman RS, Heaston DK, Moore AV, Ram PC
Dept. Radiology, Duke Univ. Medical Center, Box 3808, Durham, NC, 27710
J Comput Assist Tomogr; 6(3):514-518 1982

Subcutaneous collateral veins were identified by computed tomography (CT) in 12 patients. These were seen as enhancing round or tubular structures surrounded by subcutaneous fat, and most were associated with occlusion of a major vein in the abdomen or thorax. The CT appearance of deep vein occlusions included an intraluminal thrombus with an enhancing rim, a mass replacing the nonvisualized vein and distortion of the vein by an adjacent mass. The subcutaneous fat was examined on the CT scans of 50 patients not suspected of having deep venous occlusions. The appearance of normal subcutaneous structures and the differential diagnosis are discussed. (Author abstract) (4 Refs)

10. ADENOCARCINOMA OF THE GASTROESOPHAGEAL JUNCTION: BARIUM AND CT EXAMINATION.

Freeny PC, Marks WM
Dept. Radiology, Mason Clinic, P.O. Box 900, Seattle, WA, 98111
AJR; 138(6):1077-1084 1982

Seventy-seven patients with adenocarcinoma of the gastroesophageal junction were evaluated with upper gastrointestinal barium studies (single-contrast, 40; double-contrast, 37) and 21 of these had preoperative computed tomography for staging. Single- and double-contrast studies were equally sensitive in detecting exophytic tumors, but double-contrast studies were slightly more sensitive (25 of 26) than single-contrast examinations (21 of 25) in detecting infiltrating tumors. Computed to-

mography accurately staged 18 (86%) of 21 cases (16 unresectable, 2 resectable). The most reliable computed tomographic findings of tumor unresectability were metastases (liver, adrenal) and local tumor extension, both found in 10 (48%) of 21 cases, and regional adenopathy, present in 8 (38%) of 21 cases. The presence or absence of the periesophageal soft-tissue planes was an unreliable finding and led to both false-positive (2 cases) and false-negative (4 cases) diagnoses. CT-guided percutaneous fine-needle aspiration biopsy was used successfully in four cases to obtain a cytologic diagnosis of metastatic adenocarcinoma. (Author abstract) (41 Refs)

11. COMPUTED TOMOGRAPHY OF THE LIVER AND SPLEEN WITH INTRAVENOUS LIPOID CONTRAST MATERIAL: REVIEW OF 60 EXAMINATIONS.

Vermess M, Doppman JL, Sugarbaker PH, Fisher RI, O'Leary TJ, Chatterji DC, Grimes G, Adamson RH, Willis M, Edwards BK
Dept. Diagnostic Radiology, Clinical Center, NIH, Building 10, Room 6S211, Bethesda, MD, 20205
AJR; 138(6):1063-1071 1982

In 60 computed tomographic examinations of the liver and spleen in 55 patients, a new intravenous lipid contrast material, Ethiodized Oil Emulsion 13, was used. This organ-specific contrast material, retained by the reticuloendothelial cells of the liver and spleen, caused marked increase in the attenuation of the liver and spleen, but did not appreciably change the attenuation of the tumor involving these organs, thereby significantly increasing the density differential between normal and abnormal tissue. Toxicity was considered to be well within tolerable limits with the most frequently noted untoward side effects of chills, fever, headaches, and foul metallic taste. Ethiodized Oil Emulsion 13 holds the promise to become a valuable clinical tool by which hepatic and splenic imaging may be significantly improved and lesions less than 1 cm in diameter demonstrated in the liver and spleen. (Author abstract) (23 Refs)

12. CT FEATURES OF BILIARY OBSTRUCTION (MEETING ABSTRACT)

Baron RL, Stanley RJ, Lee JK, Koehler RE
Department of Radiology, Hospital of the University of Pennsylvania, Philadelphia, PA, 19104
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A120 1982

With high resolution CT (computed tomography) scans available, CT is increasingly being used to evaluate the biliary system in jaundiced patients. CT delineation of the bile ducts allows for accurate diagnoses in differentiating causes of biliary obstruction. A retrospective review of CT scans in 65 consecutive patients with proven biliary obstruction due to pancreatitis, choledocholithiasis, benign strictures, pancreatic carcinoma, cholangiocarcinoma, metastatic lesions, lymphoma, and other tumors was done to define and differentiate CT changes. Characteristic features allowed for specific accurate diagnosis in over 80 percent of cases. Sources of error and potential pitfalls will be discussed. In addition, CT techniques to optimize visualization of the biliary system will be described. (no Refs)

13. COMPUTED TOMOGRAPHIC APPEARANCE OF RESECTABLE PANCREATIC CARCINOMA.

Itai Y, Araki T, Tasaka A, Maruyama M
Dept. Radiology, Faculty Medicine, Univ. Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, Japan
Radiology; 143(3):719-726 1982

Thirteen patients with resectable pancreatic carcinoma were examined by computed tomography (CT). Nine had a mass, two had dilatation of the main pancreatic duct, one appeared to have ductal dilatation, and one had no sign of abnormality. Resectable carcinoma was diagnosed retrospectively in eight cases, based on the following criteria: a mass with a distinct contour, frequently containing a tiny or irregular low-density area and accompanied by dilatation of the caudal portion of the main pancreatic duct without involvement of the large vessels, liver, or lymph nodes. Including unresectable cancer, chronic pancreatitis, and obstructive jaundice from causes other than cancer, the false-positive rate was less than 6%. However, a small cancer without change in pancreatic contour is difficult to detect with CT. (Author abstract) (17 Refs)

14. COMPUTED TOMOGRAPHIC SCREENING OF THE ABDOMEN IN THE HIPPEL - LINDAU SYNDROME (MEETING ABSTRACT)

Levine E, Collins DL, Horton WA, Schimke RN
Department of Diagnostic Radiology, Kansas University Medical Center, Kansas City, KS, 66103
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A46 1982

Patients with the Hippel - Lindau Syndrome (HLS) frequently develop asymptomatic abdominal manifestations including renal cysts and carcinomas, pheochromocytomas and pancreatic tumors and cysts. Early detection of renal carcinoma and pheochromocytoma is particularly important. Accordingly, periodic screening of affected individuals and at risk family members is necessary. Abdominal CT (computed tomography) was performed in 31 subjects from three families. Fifteen had asymptomatic abdominal manifestations of HLS including renal cysts in 14, renal carcinomas in four, pancreatic cysts in six and pheochromocytomas in two. CT constitutes an excellent non-invasive screening technique for patients with possible abdominal involvement by HLS. (no Refs)

15. CT PATTERNS OF MESENTERIC DISEASE.

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J Comput Assist Tomogr; 6(3):490-496 1982

To evaluate the patterns of mesenteric disease as visualized by computed tomography (CT), we reviewed the scans of 370 patients whose primary diagnoses coincided with diseases known from the pathology literature to have frequent mesenteric involvement. Diagnoses included selected malignancies, inflammatory diseases, and traumatic injuries. Four general patterns of involvement of the mesentery were recognized: (a) rounded masses, (b) 'cake-like' masses, (c) ill-defined masses, and (d) stellate mesentery. Of the malignancies reviewed, mesenteric involvement as visualized by CT occurred most commonly with ovarian carcinoma (20/52) and non-Hodgkin's lymphoma (41/134). The incidences of CT evidence of involvement of the mesentery with other common malignancies were carcinoma of the colon (8/68), carcinoma of the pancreas (5/21), and leukemia (5/19). Certain benign and malignant lesions of the mesentery do demonstrate unique CT patterns of involvement. Examples of the individual patterns in common and unusual disease states are illustrated. (Author abstract) (9 Refs)

16. COMPUTED TOMOGRAPHY SCAN FOR DIAGNOSIS AND STAGING OF RENAL CELL CARCINOMA (MEETING ABSTRACT)

Richie JP, Garnick MB, Selzer S, Bettman MA

No affiliation given

77th Annual Meeting of the American Urological Association, Inc May 16-20, 1982, Kansas City, Missouri. American Urological Association 254 pp., 1982.

Controversy exists about the optimal and most cost-effective approach of the diagnosis of a renal mass. Flush and selective arteriography have been the sine qua non for accurate diagnosis and staging of renal cell carcinoma (RCC). However, these techniques are relatively invasive, carry a certain morbidity, and have proven of limited value in detecting extrarenal spread and regional nodal involvement. Improvements in computed tomography (CT), with its advantages over other imaging modalities, have led to comparisons of CT and angiography in diagnosis and staging of RCC. We have evaluated 45 patients with proven RCC for the effectiveness of arteriography, CT, or both to accurately diagnose and stage these patients. Clinical/surgical correlations reveal that the CT scan compares favorably with arteriography in the assessment of extent of local disease, lymph node involvement, and inferior vena caval involvement. Diagnosis of tumor was superior with CT (38/40) compared to angiography (29/34) because of the presence of avascular lesions. Equivalent accuracy was noted in localizing stage I or II RCC, and CT was better in evaluation of regional lymph nodes and hepatic involvement. The results of these comparisons have led us to choose CT as the primary radiographic procedure of choice for the diagnosis and preoperative staging (for local extent) of RCC. In patients with questionable findings, however, inferior venacavography and/or arteriography are utilized as complementary studies to the CT scan. (no Refs)

17. CT OF CALCIFIED RENAL MASSES.

Weyman PJ, McClennan BL, Lee JK, Stanley RJ

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AJR; 138(6):1095-1099 1982

The ability to evaluate the composition and to precisely locate calcifications within renal masses resulted in more accurate evaluation of 21 calcified renal masses by computed tomography than by standard radiographic techniques. Of 11 solid tumors, computed tomography demonstrated a soft-tissue mass extending beyond the calcification in nine cases of renal cell carcinoma. Of 10 benign cystic lesions, all 6 lesions characterized by a uniform water-density center, calcification confined to the wall, and no detectable soft-tissue mass were benign cysts. Three additional cystic lesions (xanthogranulomatous pyelonephritis, multilocular cystic nephroma, and a cyst containing calcified debris) were believed to represent benign lesions postoperatively due to the absence of a soft-tissue mass. Only peripherally calcified lesions with a central attenuation higher than accepted for benign cysts were indeterminate by computed tomography. The significance of the computed tomographic findings in terms of malignant potential and patient management is discussed. (Author abstract) (13 Refs)

18. CT OF RENAL AND PERIRENAL NON-HODGKIN LYMPHOMA.

Jafri SZ, Bree RL, Amendola MA, Glazer GM, Schwab RE, Francis IR, Borlaza G

Dept. Radiology, Univ. Michigan Medical Center, Box 13, Ann Arbor, MI, 48109

AJR; 138(6):1101-1105 1982

The CT findings from a retrospective review of 16 patients (32 kidneys) with non-Hodgkin lymphoma involving the kidney are presented. In all cases, computed tomography (CT) accurately depicted the presence, location, and size of the renal lesions and provided information about the adjacent retroperitoneum. CT was helpful in evaluating the course of the disease and its response to therapy. The CT manifestations of renal lymphoma included: solitary nodules (4 kidneys), multiple nodules (9), focal infiltration (5), diffuse infiltration (2), engulfment of the kidney by contiguous retroperitoneal disease (3), and renal enlargement (13 kidneys). Bilateral renal involvement was noted in seven patients. All 16 patients had retroperitoneal adenopathy. The CT findings of intraparenchymal renal nodules, renal infiltration, or renal engulfment by retroperitoneal disease in association with retroperitoneal adenopathy should suggest the possible diagnosis of renal lymphoma. (Author abstract) (22 Refs)

19. COMPUTED TOMOGRAPHY OF URETERAL OBSTRUCTION.

Bosniak MA, Megibow AJ, Ambos MA, Mitnick JS, Lefleur RS, Gordon R

Dept. Radiology, New York Univ. Medical Center, 560 First Ave., New York, NY, 10016

AJR; 138(6):1107-1113 1982

Although hydronephrosis can usually be diagnosed by urography and/or pyelography, the etiology of the obstruction may not be apparent. Computed tomography (CT) is usually helpful in evaluation of these cases. In 36 cases in which CT were performed solely to determine the cause of ureteral obstruction of uncertain etiology, it proved to be of value in 33 instances (91.7%). The disease processes encountered in this series included metastatic carcinoma to the ureter ore periureteral tissues (22), lymphoma (1), primary ureteral tumor (2), radiolucent urethral stone (4), adjacent ileocolitis (2) aortic or iliac artery aneurysm (2), fibrous band (1), urinoma (1), and radiation fibrosis (1). In three cases (8.3%) an etiologic diagnosis could not be made by CT. These patients had radiation therapy to treat malignant disease, and recurrent tumor responsible for urethral obstruction could not be distinguished from radiation fibrosis. (Author abstract) (21 Refs)

20. COMPUTED TOMOGRAPHY IN THE PREOPERATIVE EVALUATION OF MASSES ARISING IN OR NEAR THE JOINTS OF THE EXTREMITIES.

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Radiology; 143(3):727-732 1982

Knowledge of the precise anatomical relationship of a mass lesion to a joint is helpful in the preoperative planning of surgery. We have evaluated this relationship in 23 patients with a variety of benign and malignant lesions related to the knee and other major joints. In 15 patients, the lesion-join relationship was assessed by routine computed tomographic (CT) scans followed within 24 hr by arthrography. In 9 of these 15 patients, CT demonstrated that the lesion either was remote from the

joint or clearly invaded it, and arthrography could have been avoided in these patients. In six patients, the CT findings were indeterminate and further evaluation by arthrography was indicated. CT scans limited to the joint area and obtained immediately after arthrography were available in 14 patients. In general, postarthrography CT did not add significant information to that provided by prearthrography CT scans or by arthrography. However, it may be helpful in occasional cases in which arthrography is not definitive. (Author abstract) (23 Refs)

BREAST TUMORS

21. MAMMOGRAPHIC PATTERNS AND BIAS IN BREAST CANCER DETECTION.

Boyd NF, O'Sullivan B, Campbell JE, Fishell E, Simor I, Cooke G, Germanson T
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Radiology; 143(3):671-674 1982

Wolfe's finding that some mammographic patterns (P2 and DY) are associated with an increased risk of breast cancer has been challenged by some authors who suggest that this is due to denser patterns concealing cancers present on the first examination: these cancers, it is argued, are diagnosed in later yr, creating the spurious impression of increased cancer incidence. The authors examined this hypothesis in a series of patients with breast cancer but failed to find any evidence that the diagnosis was subject to systematic delay in patients with the P2 or DY pattern. Moreover, studies of a hypothetical model showed that bias in the detection of breast cancer was unlikely to account for more than a small increase in apparent cancer incidence. Thus it appears unlikely that such a bias is responsible for the risk of breast cancer observed in patients with these mammographic patterns. (Author abstract) (19 Refs)

22. SO-CALLED INTERVAL CANCERS OF THE BREAST PATHOLOGIC AND RADIOLOGIC ANALYSIS OF SIXTY-FOUR CASES.

Holland R, Mravunac M, Hendriks JH, Bekker BV
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Cancer; 49(12):2527-2533 1982

Within a population-based breast cancer screening program, 209 cancers were detected by regular mammographic screening. Additionally, 66 cancers were discovered between two consecutive screenings after one, two, or three negative screening examinations (interval cancers). The study group consisted of 25,920 women who have been participating since 1975 in a breast cancer screening program in Nijmegen, The Netherlands. In this program, single view mammography (lateromedial projection) was administered as the sole screening examination every 2 yr. Physical examination was not part of the screening program. All previous histologic and radiologic material from 64 of those 'interval' patients was available and was reviewed. In 19 of the 64 patients, direct or indirect signs of tumor were seen on the previous screening mammogram on review (observers error). In four cases, the site of the tumor lay outside the imaging field (technical error). In 41 cases, no signs of tumor could be seen on the mammograms even on review. By calculated tumor doubling times, 20 of these 41 cases were probably too small to be detected at the last screening ('real' interval cancers). However, 21 cases were probably large enough but were somehow masked from radiologic detection. The main reasons for this 'masking' proved to be: (1) dense breast, (2) poorly outlined tumor mass of diffuse infiltrative type, mainly invasive lobular carcinomas, and (3) intraductal localization. The authors suggest that women with dense breasts be screened more frequently, using more views and modalities and with broader criteria for advising surgical biopsy. They also note that in general the 2-yr interval between screenings is probably longer than the optimal interval. (Author abstract) (10 Refs)

23. THE ABILITY OF RADIOLOGISTS TO CLASSIFY MAMMOGRAMS REPRODUCIBLY AND CONSISTENTLY ACCORDING TO WOLFE (MEETING ABSTRACT)

Carlile T, Kopecky KJ, Gilbert FI, Krook PM, Present AJ, Russell HW, Threatt BA, Thompson DJ
No affiliation given
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A67 1982

The Wolfe System of Mammographic Parenchymal Patterns for estimating breast cancer risk has received wide attention and conflicting reports concerning its validity. In the first of three Reproducibility Consistency Studies (R/C Study) funded by NCI, test sets of 100 mammograms were randomly selected from each of four cooperating institutions. These were read by eleven radiologists with varying degrees of experience. Each radiologist read his own institution's images, 100 exchange images and re-read the orginial images. These results were than related to Dr. Wolfe's reading of the same mammograms. A second study tested the radiologists' readings after training by Wolfe. A third study repeated the study with the addition of an atlas. Consistency of reading ranged from 75% to 92% among the radiologists compared to Wolfe's consistency of 95%. The results of the three studies indicate that the classifications--significantly refined during the studies--can be applied at a statistically satisfactory level by radiologists with varying backgrounds. (no Refs)

24. SONOGRAPHIC MANIFESTATIONS OF MALIGNANT BREAST DISEASE.

Cole-Beuglet C
Dept. Radiology, Thomas Jefferson Univ. Hosp., 1015 Walnut St., 5th floor, Philadelphia, PA, 19107
Semin Ultrasound; 3(1):51-57 1982

One hundred biopsy-confirmed breast malignancies were retrospectively analyzed. These tumors were detected in the course of 2,000 ultrasound mammograms (USM) using the water path technique with the patient in a prone position. The ultrasound descriptive criteria listed at the initial readings of the USM were reviewed and correlated with the breast histopathology, including the tumor type and analysis of the percentage of connective tissue and epithelial elements within each tumor. The descriptive criteria were noted to correlate with the size and connective tissue content of the breast cancers with infiltrating duct carcinomas having the most characteristic USM descriptive criteria. Morphology and characteristics of infiltrating duct carcinoma, cellular carcinomas, and metastatic cancer to the breast are presented and described. Problems of solid masses and occult carcinoma and differential diagnosis are discussed. Ultrasound mammography, with current resolution in the range of 2 mm, does not routinely image microcalcifications, although the tumor containing the microcalcifications may be seen through the identification of typical criteria of infiltrating carcinoma. Hematomas within the breast

occur as a result of trauma, either accidental or surgical. An area of fat necrosis within the breast parenchyma from previous trauma may present as a palpable mass lesion. The appearance is similar to that of an infiltrating duct carcinoma and the history of trauma is essential for correct B-scan interpretation. (22 Refs)

25. RESULTS OF BREAST ECHOGRAPHIC EXAMINATIONS IN SIDNEY, AUSTRALIA. 1972-1979.

Jellins J, Reeve TS, Croll J, Kossoff G
Ultrasonic Imaging, Ultrasonics Inst., 5 Hickson Road, Millers Point, Sydney, N.S.W. 2000, Australia
Semin Ultrasound; 3(1):58-62 1982

Of 2,788 women examined by ultrasonography (US), 120 of them had cancers and 107 had benign lesions that were confirmed at biopsy. Cysts greater than 2-3 mm in cross-section were diagnoses by US with an accuracy of better than 98%. The sensitivity of EG for diagnosing fibroadenomas was 88%. When clearly defined, these lesions appeared as well-demarcated lesions with prominence of the anterior or posterior boundaries. US features led to diagnosis of 99/120 proven carcinomas greater than 5 mm. The sensitivity of US for cancers less than 2 mm in size (38 patients) was 79%, and for tumors greater than 2 mm this value increased to 84%. False positive diagnoses of carcinoma were obtained in 7% of patients and were attributed to areas of fatty tissue surrounded by fibrotic tissue changes. The sensitivity of US in younger patients was lower than in older patients. In another study of 1,320 women, similar results were obtained. US is recommended for women less than 30 yr old with a breast complaint as the first imaging modality. US can be helpful in assessing women over the age of 30 yr with a breast complaint, particularly because no ionizing radiation is involved, allowing the procedure to be repeated. In women with clearly defined breast disease, US can aid in the identification of solid lesions. (3 Refs)

26. THE DIAGNOSIS OF BENIGN DISEASE AND THE EXCLUSION OF MALIGNANCY IN PATIENTS WITH BREAST SYMPTOMS.

Croll J, Kotevich J, Tabrett M
Sydney Square Diagnostic Clinic, 2nd Floor, St. Andrew's House, Sydney Square 2000, Australia
Semin Ultrasound; 3(1):38-50 1982

Pilot study of 1,500 symptomatic patients to test methodology and data collection and findings and results of follow-up of 4,850 patients are discussed. Women under 25 yr old were examined by double-blind surgical opinion (DBSO) and by ultrasonography. Women over 25 yr old were examined by DBSO and routine film-screen and/or xeromammography. Performance of ultrasound mammography and interpretation of sonograms including skin line and nature of a mass are discussed. Benign conditions which are well demonstrated ultrasonically are unilateral breast development, unilateral hyperthrophy, benign tumors causing gross unilateral breast enlargement, unusual conditions in prepubertal girls, benign mammary dysplasia, duct ectasia, breast abscess, fat necrosis, hematoma, examination during pregnancy and lactation, augmentation mammoplasty, gross cystic disease, fibroadenoma, cystosarcoma phylloides, mixed benign pathology, and mixed benign and malignant pathology. Being lesions which present diagnostic difficulties ultrasonically are cysts with internal echoes or without posterior enhancement, localized areas of active dysplasia, inflammatory disease, and circumscribed carcinoma. In a series of 173 cancers, mammography correctly called 88% malignant and 3% suspicious of malignancy, a total of 91%, giving a false negative rate of 9%. Sonography in the same patients was malignant in 81% and suspicious in 4%, giving a false negative rate of 15%. The false negative rate for surgical opinion in the same patients was 10%. Ultrasonography correctly classified 99% of discrete clinical or mammographic masses into cystic or solid. (4 Refs)

GASTROINTESTINAL TUMORS

27. ANGIOGRAPHIC FINDINGS OF SMALL HEPATOCELLULAR CARCINOMA.

Ohishi H, Ohue S, Imai S, Ueda J, Katuragi M, Fukuzumi A, Matuo N, Otuji H, Yoshioka T, Kichikawa K, Murata T, Iwasaki S, Hosogi Y, Uchida H, Yoshida H
Dept. Radiology, Nara Medical Univ., Kashihara, Japan
Nippon Igaku Hoshasen Gakkai Zasshi; 42(1):1-7 1982

For the purpose of defining the angiographic characteristics and establishing the differential diagnostic criterion for the small hepatic tumors, the angiographic findings of 44 cases of hepatocellular carcinoma, 35 cases of metastatic liver tumor and 23 cases of hepatic hemangioma having a diameter of less than 4 cm were analyzed. All the angiograms of small hepatic tumors permitted classification into five types each of arterial and venous phases. The angiograms of various tumors proved to belong to different combinations of these types. The differential diagnostic criterion, intended for the improvement of differential diagnosis of small hepatic tumors, was determined on the basis of these angiographic combination. The tumor vessels were not clearly viewed in hepatocellular carcinoma of the size less than 2 cm, which, however, showed either the early homogenous or irregular tumor stain in many cases. Hepatocellular carcinoma larger than 2 cm, on the other hand, tended to display distinct dilated and tortuous tumor vessels and irregular tumor stain in the tumor lesion. These were the characteristic findings of small hepatocellular carcinoma. Metastatic liver tumor was characterized by the tumor stain that was defected into a ring-like shape and hepatic hemangioma, by the collective pattern of dilated vessels and densely maculated tumor stain. The microangiogram of hepatocellular carcinoma in which the tumor stain was visualized from the early stage of arterial phase and failed in the imaging the tumor vessels by the ordinary angiography revealed an abundance of dilated and tortuous vessels within the tumor. This suggested the urgency of improvement of angiographic accuracy by performance of magnification angiography, etc for visualization of these tumor vessels. (Author abstract) (18 Refs) (In JPN)

28. NEW CONCEPTS IN HEPATIC NEOPLASM ANGIOGRAPHY (MEETING ABSTRACT)

Chuang VP
No affiliation given
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A259 1982

Tha normal hepatic parenchyma is supplied by both the hepatic artery (25%) and portal vein (75%), while hepatic neoplasms are supplied by the hepatic artery only, is important in interpreting celiac and hepatic angiography. Since both hepatic artery and portal vein are opacified in celiac arteriogram (CA), the densely opacified hepatic parenchyma frequently makes the less well opacified hepatic neoplasms either 'isodense' or 'hypovascular'. Contrarily, the nonopacified portal flow in hepatic

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arteriogram (HA), has a 'washout' effect on normal parenchyma only, so that the hepatic neoplasm remains 'hypervascular' because of lack of the portal vein 'washout'. Based on these concepts, the following observations are made: (1) both primary and metastatic neoplasms are almost always hypervascular (in HA); (2) an hepatic neoplasm is always avascular in arterial portography; (3) the tumor becomes avascular or hypovascular (in HA) with tumor necrosis; and (4) conversion of a hypervascular tumor to a hypovascular tumor following treatment reliably signals response. (no Refs)

GENITOURINARY TUMORS

29. THE ACCURACY OF GRAY-SCALE RENAL ULTRASONOGRAPHY IN DIFFERENTIATING CYSTIC NEOPLASMS FROM BENIGN CYSTS.

Pollack HM, Banner MP, Arger PH, Peters J, Mulhern CB, Coleman BG
Dept. Radiology, Hosp. Univ. Pennsylvania, 3400 Spruce St., Philadelphia, PA, 19104
Radiology; 143(3):741-745 1982

To evaluate the ability of gray-scale renal ultrasonography to distinguish cystic neoplasms from benign cysts, 182 cysts or cyst-like masses were reviewed retrospectively by three radiologists with varying degrees of experience in nephrosonography. All cases were proved by needle puncture or surgery. An unequivocal diagnosis of 'cyst' based solely on ultrasonography was 98% accurate, with 2% being due to hematomas, localized hydronephrosis, or septa within the cyst. No cystic neoplasms were mistaken for benign cysts. These results indicate that experienced observers using proper technique will rarely be in error in distinguishing non-neoplastic cystic masses from cystic neoplasms by articulated-arm gray-scale ultrasonography, and that routine needle puncture may be unnecessary in such cases. (Author abstract) (12 Refs)

HEMATOPOIETIC, RETICULOENDOTHELIAL AND LYMPHATIC TUMORS

30. IMAGING TECHNIQUES FOR STAGING ABDOMINAL HODGKIN'S DISEASE.

Castellino RA
Div. Diagnostic Radiology, Stanford Univ. Sch. Medicine, Stanford, CA, 94305
Cancer Treat Rep; 66(4):697-700 1982

Choice of imaging techniques for staging abdominal Hodgkin's disease (HD) depends on the patterns of involvement; the sensitivity, specificity, and accuracy of the available studies; and the type of information needed. Sites frequently involved by tumor, including para-aortic, paracaval, parailiac, and splenic hilar lymph nodes, and the spleen, should be routinely evaluated. Specific sites, regardless of the incidence of disease at that site, should be studied if appropriate signs or symptoms are present. Imaging techniques specifically used for the retroperitoneal lymph nodes, other lymph node groups, the spleen, liver, and gastrointestinal and genitourinary tracts are described. Possible choices of techniques include plain film radiography such as conventional tomography and positive-contrast studies, angiography including lymphography, radionuclide studies, ultrasonography, and computerized tomography. An approach to imaging the abdomen and pelvis in newly diagnosed, previously untreated patients with HD for staging purposes is outlined. (8 Refs)

31. RADIOGRAPHIC EVALUATION OF RECURRENT HODGKIN'S DISEASE IN CHILDHOOD (MEETING ABSTRACT)

Cohen RA, Parker BR, Donaldson SS, Castellino RA, Kaplan HS
No affiliation given
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A117 1982

This study was undertaken to determine the value of routine surveillance radiographs in the identification of recurrent Hodgkin's disease in childhood. Between 1961 and 1980, 179 patients aged 15 or less were entered on prospective diagnostic and therapeutic protocols. Serial surveillance chest and abdominal radiographs were obtained. Relapse occurred in 37 patients. Thirty-four separate sites of recurrent disease were identified radiographically in 29 patients, 16 of whom were clinically free of disease. Chest radiographs were positive in 17 patients and abdominal radiographs or reopacification lymphograms were positive in 13 patients. Our results document the value of routine surveillance radiographs in detecting recurrent Hodgkin's disease in children. (no Refs)

MUSCULOSKELETAL TUMORS

32. TREATED EWING SARCOMA: RADIOGRAPHIC FINDINGS IN RESPONSE, RECURRENCE, AND NEW PRIMARIES (MEETING ABSTRACT)

Taber DS, Libshitz HI, Cohen MA
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Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A237 1982

Favorable therapeutic responses of Ewing sarcoma follow a definable radiographic pattern. Progressive solidification of periosteal reaction, coarsening of trabeculae within the lesion, and development of marginal sclerosis correlated with healing in 13 patients. These features progressed and stabilized over 1-3 years. Deviation from this pattern should arouse suspicion of recurrence or development of a new primary malignancy, possibly radiation induced. Absence of the pattern or new permeative changes once the pattern developed indicated recurrent Ewing sarcoma in 5 patients. Increasing bone density or blastic response signaled development of osteogenic sarcoma in 3 patients. (no Refs)

33. RADIOGRAPHIC AND ANGIOGRAPHIC CHANGES OF OSTEOSARCOMA FOLLOWING INTRAARTERIAL CHEMOTHERAPY (MEETING ABSTRACT)

Chuang VP, Charnsangavej C, Soo CS, Wallace S, Benjamin R, Jaffe N
M. D. Anderson Hospital and Tumor Institute, Houston, TX, 7703
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A251 1982

Transcatheter arterial infusion chemotherapy (TAIC) has improved the preoperative control of osteosarcoma. The conventional radiographs and angiographies of osteosarcoma were evaluated in 24 patients following TAIC. In patients who responded to TAIC, the conventional radiographs revealed solid rim calcification or overall increase of organized calcification and the angiographies showed decreased tumor vessels and stain. Using angiographic criteria, 17 of 24 patients responded to TAIC in this series. Limb salvage operation became the treatment of choice in the responders and aggressive limb amputation was avoided. Excellent correlation between the angiographic findings of tumor response and the pathohistologic evidence of tumor necrosis was established. (no Refs)

34. MALIGNANT FIBROUS HISTIOCYTOMA OF SOFT TISSUE WITH METAPLASTIC BONE AND CARTILAGE FORMATION: A NEW RADIOLOGIC SIGN.

Dorfman HD, Bhagavan BS
Dept. Pathology, Sinai Hosp. of Baltimore, Baltimore, MD, 21215
Skeletal Radiol; 8(2):145-150 1982

Of 39 cases of soft tissue malignant fibrous histiocytoma (MFH), seven contained bony and cartilaginous tissue microscopically, and five of those showed punctate and curvilinear soft tissue densities strongly suggestive of myositis ossificans radiologically. Case reports of these five patients (3 females, 2 males; 10-67 yr old) are presented. Only one case showed the histological features of malignant cell tumor of soft tissue, regarded as a variant of MFH. The osseous or cartilaginous elements were present in variable amounts in the tumors. In four of five cases zoning appeared as seen in myositis ossificans. Chondroid metaplastic tissue blended gradually into reactive bone trabeculae. Plain films demonstrated the mineralized matrix elements as curvilinear densities or punctate densities which tended to be located at the periphery of the tumor masses or at one pole with a pyramidal cap shape. While peripheral zoning in four cases suggested myositis ossificans, the so-called dotted veil appearance of myositis ossificans was not observed. New bone formation adjacent to the femur or ulna was observed in three cases. Clinically, the cases had a short history ranging from a few wk to 6 mo, rendering the existence of a benign lesion prior to the development of MFH unlikely. A diagnosis of MFH should be considered by the radiologist in differential diagnosis of soft tissue tumors with calcific densities. (11 Refs)

35. DIGITAL SUBTRACTION ANGIOGRAPHY (DSA) FOR THE PRE-OPERATIVE EVALUATION OF TUMORS OF THE EXTREMITIES (MEETING ABSTRACT)

Paushter DM, Borkowski GP, Buonocore E, Marks KE
No affiliation given
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A94 1982

Angiography in conjunction with CT (computerized tomography) has been useful in the surgical planning of patients with tumors of the extremities. Twelve patients with primary bone or soft tissue neoplasms were evaluated using digital subtraction angiography (DSA) as an alternative to conventional angiography. DSA was effective in delineating major vessel involvement, degree of vascularity and tumor blood supply which aided in planning the surgical approach as well as for post-operative evaluation to determine tumor recurrence. In patients who had both DSA and conventional angiography, the results of either modality provided comparable information. In these twelve patients, DSA proved to be an adequate, less invasive substitute for angiography in the evaluation of tumors of the extremities that could be performed on an out-patient basis. (no Refs)

RESPIRATORY TUMORS

36. ASPIRATION OF THORACIC MASSES AND FLUID COLLECTIONS UNDER GUIDANCE OF ULTRASONOGRAPHY.

Elyaderani MK, Gabrielle OF
Radiology Dept., West Virginia Univ. Medical Center, Morgantown, WV, 26506
South Med J; 75(5):536-539 1982

Successful ultrasonic detection and fine needle aspiration of pleural effusions, loculated fluid, and peripheral lung masses were done in 115 patients. No complications, eg, pneumothorax or hematoma, were caused by the fine needle aspirations. There was no false-negative or false-positive cytology because of excellent localization by ultrasound and adequate tissue samples. This series shows ultrasonography to be a valid method of evaluating chest lesions seen to be peripheral on chest roentgenograms. The cystic or solid nature of these lesions was determined; however, we experienced difficulty in differentiating small amounts of loculated fluid from pleural thickening in a few cases. Difficulties were also noted with a few small peripheral tumors that appeared to be cystic on ultrasonography but were proven to be solid by fine needle aspiration. These problems can be resolved by an experienced sonographer using equipment with higher resolution, but we did not hesitate to do fine needle aspiration in such circumstances. (Author abstract) (14 Refs)

REVIEWS

37. EVALUATION OF ORBITAL AND EYE LESIONS BY RADIOGRAPHIC EXAMINATION, ULTRASOUND, AND COMPUTERIZED TOMOGRAPHY.

Weber AL, Dallow RD, Hammerschlag SB
Massachusetts Eye and Ear Infirmary, Harvard Medical Sch., Boston, MA
CRC Crit Rev Diagn Imaging; 17(4):277-321 1982

Indications for use of imaging procedures in the diagnosis of diseases of the eye and orbit are discussed, their diagnostic value assessed, and specific findings enumerated and discussed. The anatomy of the orbit is described. Plain views (Caldwell, Water's, lateral, base, and optic foramen views) and tomography of the orbit are discussed. Plain films reveal alterations in the size of the orbit, which may be generalized enlargement due to hemangiomas, neurofibromatosis, or space-occupying lesions or may be secondary to local enlargement due to benign

lacrimal gland tumors, neurilemmomas, and extradural meningiomas. Radiography also may show erosion of the orbit, diffuse lytic bone destruction resulting from malignant lacrimal gland tumors, rhabdomyosarcoma, retinoblastoma, lymphoma, leukemia, and secondary invasion from sinus tumors. Radiographic diagnosis of hyperostosis of the orbit and orbital calcification is described. Clinical assessment and pathology of eye and orbital lesions are considered. Soft tissues of the eye and orbit can be evaluated in detail and with high diagnostic accuracy using ultrasound. Ultrasound may be useful in the differential diagnosis of intraocular tumors, such as malignant melanoma, metastatic tumor to the uveal tract, and choroidal hemangioma, retinoblastoma, and intraocular cysts. Ultrasonic appearance of normal orbits and orbits with cystic masses, solid tumors, angiomatous tumors, infiltrative tumors, and inflammatory and congestive processes is described. Computed tomography (CT) of the eye and orbit is discussed. CT characteristics of intraconal and extraconal lesions, pseudotumors, Graves' disease, foreign bodies, and trauma are described. (81 Refs)

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COMPUTER ASSISTED TOMOGRAPHY

1. CT OF NEUROBLASTOMAS AND GANGLIONEUROMAS IN CHILDREN.

Armstrong EA, Harwood-Nash DC, Ritz CR, Chuang SH, Petterson H, Martin DJ
(c/o Harwood-Nash) Dept. Radiology, Hosp. Sick Children, 555 University Ave., Toronto, Ontario, M5G 1X8, Canada
AJNR; 3(4):401-406 1982

Diagnostic efficacy of computed tomography (CT) was evaluated in 67 children with neuroblastoma (NB) and in 10 children with ganglioneuroma (GN). Of 77 patients, 58 were subjected to chest, abdomen or cranium CT scan and 18 were subjected to CT metrizamide myelography. Of 58 children subjected to CT alone (32 boys, 26 girls), 51 had NB (mean age of onset of 2.7 yr) and 7 had GN (mean age of onset of 7 yr). Chest and abdomen CT showed calcification of 25% of chest lesions and of 43% of abdominal lesions. Calcification was observed in 40% of NB and in 20% of GN. Three patients subjected to cranial CT were found to have extradural involvement and the metastatic intraorbital NB. Chest CT demonstrated the primary tumor or metastatic spread of the abdominal tumors. Abdominal CT demonstrated the tumor spread or the

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presence of liver metastases. CT metrizamide myelography showed intraspinal extension in 11/77 patients (2 had GN and 9 had NB). (24 Refs)

2. MEASUREMENT OF REGIONAL CEREBRAL BLOOD FLOW AND OXYGEN UTILISATION IN PATIENTS WITH CEREBRAL TUMOURS USING 15O AND POSITRON EMISSION TOMOGRAPHY: ANALYTICAL TECHNIQUES AND PRELIMINARY RESULTS.

Ito M, Lammertsma AA, Wise RJ, Bernardi S, Frackowiak RS, Heather JD, McKenzie CG, Thomas DG, Jones T
Dept. Radiology, Res. Inst. Tbc and Cancer, Tohoku Univ., 4-1 Seiryo-cho, Sendai, Japan
Neuroradiology; 23(2):63-74 1982

Regional cerebral blood flow and oxygen utilization have been studied in eight patients with brain tumors using continuous inhalation of C15O2 and 15O2 and positron emission tomography. The methods used to analyze the regional cerebral pathophysiology are presented. A relative uncoupling between oxygen consumption and blood flow was observed in all tumors as indicated by a decreased regional fractional extraction of oxygen (rOER). This suggests that a major proportion of these tumors had sufficient blood supply to meet oxygen metabolic demand. A decrease of blood flow in grey matter was found both in the affected and contralateral hemispheres of the brain. Matched reductions of flow and oxygen utilization were observed in edematous tissue. (Author abstract) (35 Refs)

3. DO WE NEED VENTRICULOGRAPHY IN THE ERA OF COMPUTED TOMOGRAPHY?

Wende S, Kishikawa T, Huwei N, Kazner E, Grumme T, Lanksch W
Dept. Neuroradiology, Univ. Hosp. Mainz, Langenbeckstrasse 1, D-6500 Mainz, W. Germany
Neuroradiology; 23(2):89-90 1982

The question is posed whether in the investigation of intracranial tumors, particularly in the posterior cranial fossa, CT and/or ventriculography should be practiced. We investigated 134 patients (93 were children up to the age of 14 yr), all of whom had had both computed tomography and ventriculography. The results clearly demonstrate the superiority of CT compared with ventriculography. Ventriculography is a surgical intervention with risk for the patient; side effects may occur and serious complications can sometimes arise. Modern CT is producing pictures of high quality which are entirely sufficient for neurosurgical intervention. Very rarely does additional angiography have to be performed. The diagnosis of intracranial tumor can be fully established by CT and ventriculography is no longer necessary. (Author abstract) (6 Refs)

4. REGIONS OF LOW DENSITY IN THE CONTRAST-ENHANCED PITUITARY GLAND: NORMAL AND PATHOLOGIC PROCESSES.

Chambers EF, Turski PA, LaMasters D, Newton TH
Dept. Radiology, Univ. California Sch. Medicine, San Francisco, CA, 94143
Radiology; 144(1):109-113 1982

The incidence of low-density regions in the contrast-enhanced pituitary gland and the possible causes of these regions were investigated by a retrospective review of computed tomographic (CT) scans of the head in 50 patients and autopsy specimens of the pituitary in 100 other patients. It was found that focal areas of low density within the contrast-enhanced pituitary gland can be caused by various normal and pathologic conditions such as pituitary microadenomas, pars intermedia cysts, foci of metastasis, infarcts, epidermoid cysts, and abscesses. Although most focal low-density regions probably represent pituitary microadenomas, careful clinical correlation is needed to establish a diagnosis. (Author abstract) (19 Refs)

5. MACROPROLACTINOMAS: CT EVALUATION OF REDUCTION OF TUMOR SIZE AFTER MEDICAL TREATMENT.

Scotti G, Scialfa G, Pieralli S, Chiodini PG, Spelta B, Dallabonzana D
Dept. Neuroradiology, Ente Ospedaliero Niguarda, p. Ospedale Maggiore, 3, I-20 162 Milan, Italy
Neuroradiology; 23(3):123-126 1982

Thirty patients with macroprolactinomas were treated with dopaminergic drugs from a minimum of 4 mo to a maximum of 6 yr. Tumor size was evaluated with serial CT during treatment; serum prolactin levels and visual fields were also assessed at the same time. Reduction of PRL levels was found in 28 patients of whom 20 also had marked reduction of tumor volume on CT. Two patterns of reduction of size of tumor in relation with time were observed. In one, tumor shrinkage occurred rapidly in the 1st month and even in the 1st wk after starting treatment. In the other pattern the tumor reduced in size only after some months of treatment. It is proposed that all patients with macroprolactinomas should be treated medically before considering surgery. A radiological diagnostic and research protocol is proposed, including scout views, thin slices, coronal sections, objective measurement of tumor size and density, serial CTs at 7, 21, 45 days, 6 months and then every year after the beginning of treatment. (Author abstract) (12 Refs)

6. CT OF IRRADIATED SOLID TUMOR METASTASES TO THE BRAIN.

Brown SB, Brant-Zawadzki M, Elfel P, Coleman CN, Enzmann DR
Div. Diagnostic Radiology, Stanford Univ. Medical Center, Stanford, CA, 94305
Neuroradiology; 23(3):127-131 1982

Twenty patients with solid tumor metastases to the brain, demonstrated by CT scanning, had follow-up scans after radiation therapy of the metastatic focus. Nine patients (45%) showed no evidence of the metastasis on the initial follow-up scans. Another 10 patients (50%) showed some improvement in the size, enhancement, or surrounding edema of the lesion. Only one patient showed progression in spite of therapy. The CT scan identified those patients who achieved longer survival and/or longer time intervals before brain relapse. However, CT scans must be interpreted with caution in patients still on corticosteroid treatment. Additionally, other non-tumoral conditions may mimic tumor recurrence. Radiation therapy offered palliation in patients with brain metastases, and in some instances, sterilized patients of their metastatic brain involvement. (Author abstract) (25 Refs)

7. COMPUTED TOMOGRAPHY OF INTRACRANIAL LYMPHOMA.

Thomas M, Macpherson P
Dept. Neurology, Inst. Neurological Sciences, Southern General Hosp., Glasgow, Scotland
Clin Radiol; 33(3):331-336 1982

The appearances on computed tomography (CT) of 17 patients with histologically proven intracranial lymphoma have been analyzed and abnormalities detected in 16. Four of the patients had systemic lymphoma. Multiple lesions were seen in eight patients (47%), in six of whom the multiple lesions in

each patient were of similar appearance. There was good macroscopic correlation between the CT and post-mortem appearances in the eight patients who subsequently died, although in five, histological examination showed more extensive infiltration. Meningeal involvement was seen more commonly in the cases of systemic lymphoma than in the purely cerebral lymphomas, but parenchymal lesions were equally common in both. Grey matter lesions tended to be clearly demarcated, of increased density with little edema or displacement; homogeneous density enhancement was produced by the intravenous injection of contrast medium. White matter lesions were usually poorly demarcated, of variable density with marked edema and displacement, and with heterogeneous enhancement. (Author abstract) (18 Refs)

8. SMALL ACOUSTIC NEUROMAS: DETECTION BY HIGH RESOLUTION GAS CT CISTERNOGRAPHY.

Pinto RS, Kricheff II, Bergeron RT, Cohen N
Dept. Radiology, New York Univ. Medical Center, 560 First Ave., New York, NY, 10016
AJR; 139(1):129-132 1982

Experience with 81 gas computed tomography (CT) cisternography procedures in 79 patients in searching for acoustic neuroma is reported. Twenty-one tumors, 4 exclusively intracanalicular, were demonstrated after standard contrast-enhanced CT was negative. Fifty-five examinations were negative; 4 were inconclusive. The high resolution scanner with digital localization and reconstruction zoom capability greatly improved image detail. In nine of the 12 normal patients examined with it, the intracanalicular bundle was demonstrated. Substitution of carbon dioxide for air greatly reduced the morbidity of acute post spinal tap headache. The procedure takes 30-45 min and can be performed on an outpatient basis. It is recommended as the procedure of choice when standard CT is negative in subjects clinically suspected of having acoustic neuroma. (Author abstract) (4 Refs)

9. COMPUTED TOMOGRAPHY OF MALIGNANT TUMORS OF THE NASAL CAVITY AND PARANASAL SINUSES.

Kondo M, Horiuchi M, Shiga H, Inuyama Y, Dokiya T, Takata Y, Yamashita S, Ido K, Ando Y, Iwata Y, Hashimoto S
Dept. Radiology, Keio Univ. Sch. Medicine, 35 Shinanomachi, Shinjuku, Tokyo 160, Japan
Cancer; 50(2):226-231 1982

Staging of malignant tumors of the nasal cavity and paranasal sinuses by computed tomography (CT) was studied in a total of 49 patients, 33 with squamous cell carcinoma and 16 with tumors of other histologic types. Involved sites by the tumor were studied, and clinical staging was made using CT findings alone according to AJC classification for maxillary sinus tumors. Surgical findings for comparison were available for most cases. Of 33 squamous cell carcinomas and of 16 tumors with other histologic types, the maxillary sinus was the site of origin in 29 and 8, respectively. Of these 37 maxillary sinus tumors, 11 were staged T3, 26 T4, and none was staged T1 or T2. None of these tumors were down staged, and one T3 was upstaged after surgical procedures, although all sinuses were not explored in some cases. Sinusitis due to obstruction was indistinguishable from the tumor without bone destruction. And the determination of the site of origin was difficult in some cases. Despite these, CT should be used for pretreatment evaluation of the tumors of these sites. (Author abstract) (14 Refs)

10. DISTINGUISHING BENIGN FROM MALIGNANT PULMONARY NODULES BY COMPUTED TOMOGRAPHY.

Godwin JD, Speckman JM, Fram EK, Johnson GA, Putman CE, Korobkin M, Breiman RS
Dept. Radiology, Duke Univ. Medical Center, Box 3808, Durham, NC, 27710
Radiology; 144(2):349-351 1982

Investigators have been able to distinguish benign pulmonary nodules from malignant ones in about two-thirds of the cases studied by detecting high computed tomography (CT) numbers (attributed to microscopic calcifications) within many benign nodules. This paper reports a similar analysis on a series of 22 benign and 14 malignant pulmonary nodules. Although about one-third of the benign nodules gave high CT numbers, all but one of the nodules diagnosed as benign by CT could also be diagnosed by detection of calcification on plain radiographs or conventional tomograms. (Author abstract) (3 Refs)

11. A COMPARATIVE STUDY OF MESOTHELIOMA AND ASBESTOSIS USING COMPUTED TOMOGRAPHY AND CONVENTIONAL CHEST RADIOGRAPHY.

Rabinowitz JG, Efremidis SC, Cohen B, Dan S, Efremidis A, Chahinian AP, Teirstein AS
Dept. Radiology, Mt. Sinai Sch. Medicine, One Gustave Levy Place, New York, NY, 10029
Radiology; 144(3):453-460 1982

A comparative study using computed tomography and conventional posteroanterior radiography was performed on 27 patients with mesothelioma and 13 patients with advanced asbestosis. The major pathologic features of both asbestosis and mesothelioma were well demonstrated by both modalities; computed tomography demonstrated the findings more frequently and in greater detail. No distinguishing features could be established based on configuration and size of the lesion. Many pleural plaques associated with advanced asbestosis were large and irregular and resembled those associated with mesothelioma. However, nodular involvement of the pleural fissures, pleural effusion, and ipsilateral volume loss with a fixed mediastinum were features predominating in mesothelioma. Growth determination of the plaques associated with asbestosis may be of minimal value since such plaques also undergo growth due to active inflammatory changes. (Author abstract) (22 Refs)

12. THE EFFICACY OF FULL-LUNG TOMOGRAPHY IN THE DETECTION OF EARLY METASTATIC DISEASE FROM MELANOMA.

Curtis AM, Ravin CE, Deering TF, Putman CE, McLoud TC, Greenspan RH
Dept. Diagnostic Radiology, Yale Univ. School Medicine, New Haven, CT, 06510
Radiology; 144(1):27-29 1982

In a prospective study, 62 patients with proved melanoma and negative chest radiographs underwent full-lung tomography. Of 109 examinations performed, 12 patients had positive findings on tomography; 9 were false-positive and 3 were true-positive. Of the true-positive examinations, two patients already had widespread metastatic disease and one had an advanced local lesion. Clinical staging and therapy were changed in only one patient as a result of information provided by full-lung tomography. It appears from these results that full-lung tomography is of limited use in detection of metastases from

melanoma in the presence of a negative chest radiography. (Author abstract) (14 Refs)

13. COMPUTED-TOMOGRAPHIC CHOLANGIOGRAPHY. A NEW TECHNIQUE FOR EVALUATING THE HEAD OF THE PANCREAS AND DISTAL BILIARY TREE.

Greenberg M, Greenberg BM, Rubin JM, Greenberg IM
Dept. Radiology, Univ. Chicago Hosp., Box 429, 950 E. 59th St., Chicago, IL, 60637
Radiology; 144(2):363-368 1982

Computed-tomographic cholangiography was used to evaluate the abdomen of 97 patients. The gallbladder and/or biliary tree was visualized well in 84 patients (87%); the distal common bile duct (CBD) was visualized well in 68 patients (70%). For 26 patients (30%) from the latter group, visualization of the opacified CBD was essential in order to differentiate the pancreatic head from the duodenum. Measurements of the distal CBD showed a significant difference between patients with gallbladders (mean, 4.7 +-1.2 mm) and those without gallbladders (mean, 6.8 +-1.1 mm). By visualizing the CBD and the superior mesenteric vein, exact dimensions of the uncinate process can be obtained. Also, the pancreatic head can be assessed more accurately, and the distal biliary tree can be evaluated. (Author abstract) (12 Refs)

14. COMPUTED TOMOGRAPHY OF TRANSITIONAL-CELL CARCINOMA OF THE RENAL PELVIS AND URETER.

Baron RL, McClennan BL, Lee JK, Lawson TL
Dept. Radiology, Hosp. Univ. Pennsylvania, 3400 Spruce St., Philadelphia, PA, 19104
Radiology; 144(1):125-130 1982

Preoperative staging of transitional-cell carcinoma of the upper urinary tract is important for identification of those tumors amenable to limited resection. Twenty-two patients were examined using computed tomography (CT), and 3 patterns were noted: (a) a focal intraluminal mass, (b) ureteral wall thickening with luminal narrowing, and (c) an infiltrating mass. In most cases, attenuation was similar to that of soft tissue; one tumor was calcified. Tumors of the renal pelvis may exhibit contrast enhancement. In 11 cases, excretory urography was inadequate or not attempted. CT demonstrated the site and cause of obstruction in all cases and proved to be a useful noninvasive staging procedure for suspected or proved transitional-cell carcinoma of the upper urinary tract. (Author abstract) (17 Refs)

15. COMPUTED TOMOGRAPHIC EVALUATION OF PRIMARY OSSEOUS MALIGNANT NEOPLASMS.

Lukens JA, McLeod RA, Sim FH
(c/o Section of Publications) Dept. Diagnostic Radiology, Mayo Clinic and Mayo Foundation, Rochester, MN, 55905
AJR; 139(1):45-48 1982

A total of 128 patients with pathologically confirmed primary osseous malignant lesions was examined by computed tomography (CT). In each case, the CT findings were compared with those from the standard radiographs, tomograms, and isotope bone scans as well as with the clinical findings, in regard to tumor detection, diagnosis, and extent. Even though CT demonstrated all lesions, 96% were seen on radiographs, with only 4% of tumors identified solely by CT. In 7% of cases, CT provided unique diagnostic information not obtainable by other means. In 77% of cases, CT gave a better indication of tumor location, extent, and relationships than did any of the other methods. After treatment, CT was efficacious in the detection or ruling out of recurrences and in patient follow-up after chemotherapy or radiation therapy. (Author abstract) (12 Refs)

BREAST TUMORS

16. VALUE OF INTRAOPERATIVE PREPARATION RADIOGRAPHY FOR THE DETECTION OF MINIMAL CANCER.

Eulenburg RS, Nitschke-Dubelstein S, Lauth G
Universitats-Frauenklinik Marburg, Pilgrimstein 3, D-3550 Marburg 1, W. Germany
Roentgenblaetter; 35(7):267-269 1982

The value of intraoperative radiography in treatment of minimal breast cancer was evaluated. In a series of 7,706 mammographies, 226 carcinomas were diagnosed. Of these, 31 were diagnosed as minimal (18 carcinomas in situ and 13 infiltrative carcinomas of up to 5 mm in diameter). Sixteen patients with minimal cancers were under 50 and 15 over 50 yr old. Preoperative mammographic findings included microcalcification (6), stellate opacities (6), microcalcifications with stellate opacities (5), disturbed connective tissue signs, (7), spherical lesions (3), and other signs (3); one finding was unexceptional. Thermography produced 15 unexceptional results and 16 abnormal results. Directed fine-needle biopsy of 22 patients produced 14 pathological findings. Segmental resection was performed in 24 patients. Resected tissue was examined intraoperatively by radiography. Resection had to be repeated in seven patients, including five who required a third resection. Results indicate that effective extirpation of minimal breast cancers requires intraoperative radiography. (11 Refs) (In GER)

17. THE SIGNIFICANCE OF MAMMOGRAPHY IN FOLLOW-UP CARE OF MAMMARY CARCINOMA PATIENTS FOR DETECTION OF BILATERAL CARCINOMA.

Schallduch U, Schumann E
Radiologische Klinik und Poliklinik, Medizinische Akademie, Nordhauser Str. 74, DDR-5060 Erfurt, E. Germany
Zentralbl Chir; 107(8):462-467 1982

The occurrence of bilateral mammary carcinoma was studied in 651 women undergoing clinical and mammographic examination. Indications of carcinoma were found in 28 women, of whom 15 had suspicious clinical and mammographic findings and 13 had only suspicious mammographic findings. Diagnosis of carcinoma was confirmed in 13 of the women (7 with suspicious clinical and mammographic findings and 6 with normal clinical findings). Three of the women had benign tumors (1 woman with suspicious clinical and mammographic findings and 2 with normal clinical findings). Twelve of the women with suspicious findings did not undergo surgery; 11/12 had generalized tumor (skin, lung, or bone metastases), and 1/12 was too old for surgery. Simultaneous bilateral carcinomas were found in four of the women; all of these tumors were occult. Metachronous bilateral carcinomas were found in 10 of the women; tumors in 8/10 were clinically evident, and those in 2/10 were occult. Metastases in the contralateral breast were found in 11 of the women; 6/11 were occult. All tumors and metastases detected in the study were detected by mammography. Mammography can detect tumors and metastases before they are clinically manifest and is, therefore, important

in monitoring women for mammary carcinoma. Mammography is recommended prior to therapy, at mo 6 and 12 after therapy, and at 1-yr intervals thereafter. (11 Refs) (In GER)

18. THERMOGRAPHY IN BREAST DIAGNOSIS.

Sterns EE, Curtis AC, Miller S, Hancock JR
Dept. Surgery, Kingston General Hosp., Kingston, Ontario, K7L 2V7, Canada
Cancer; 50(2):323-325 1982

The role of two types of thermography in the diagnosis of breast disease was studied in 502 women seen over a 2-year period. Thirteen cancers were diagnosed in 11 women. The most significant finding was the large number of equivocal or abnormal thermograms in women with normal breasts or benign disease, while in patients with proven cancer, the thermogram was abnormal in less than half. Clinical diagnosis of breast cancer was not enhanced by either or both types of thermogram. Despite specific criteria, thermographic interpretation was inconsistent except in thermograms reported as 'normal'. On the basis of the findings, the authors could not recommend that an abnormal thermogram be used as an indication for mammography, since this would result in an inordinate number of these studies, particularly in young women. The findings suggest that thermography is not a sufficiently precise modality for use in routine breast diagnosis. (Author abstract) (5 Refs)

GASTROINTESTINAL TUMORS

19. USEFULNESS OF ECHOTOMOGRAPHY IN THE DETECTION OF DIFFERENTIAL DIAGNOSIS OF FOCAL LESIONS OF THE LIVER.

Andreeff A
Service de radiodiagnostique, CHU Vaudois, CH1011 Lausanne, Switzerland
Ann Gastroenterol Hepatol; 18(3):161-164 1982

The usefulness of echotomography in the diagnosis of solitary and multiple solid and cystic focal lesions of the liver is illustrated. Correct diagnosis can be established by echotomography in approx 88% of all focal lesions, but fine-needle biopsy with cytological examination is often necessary for differential diagnosis. Solid solitary lesions are suggestive mostly of primary liver tumors. Such findings suggest hepatoma in the presence of cirrhosis. Solid circumscribed multiple lesions are most often metastases. (23 Refs) (In FRE)

20. RADIOLOGIC ASSESSMENT OF RESECTABILITY OF CARCINOMA OF THE HEAD OF THE PANCREAS.

Hemmingsson A, Jacobson G, Lindgren PG, Lonnerholm T, Lorelius LE, Nordgren CE
Dept. Surgery, Diagnostic Radiology, Univ. Hosp., S-75014 Uppsala, Sweden
Acta Radiol [Diagn] (Stockh); 23(2):127-130 1982

Twenty-four patients with probably resectable carcinoma of the head of the pancreas were examined by means of CT, ERCP and US and supplemented with angiography to assess the resectability. Resection was possible in half of the patients. As the series consisted only of potentially resectable cases, those with obvious liver metastases at CT or US were not included. The three patients in whom CT or US revealed a tumor larger than 5 cm were inoperable. A distance less than 5.5 cm between the hilum of the liver and the proximal margin of the tumor measured in the common bile duct at ERCP also meant inoperability. Invasion of the superior mesenteric or splenic vein at angiography as an indication of non-resectability was confirmed at laparotomy in 12 of 13 cases. (Author abstract) (7 Refs)

21. THE ROLE OF ULTRASOUND IN THE STUDY OF THE LOCALIZATION OF ABDOMINAL LYMPHOMAS.

Bartoloni C, Meschi I, Lucarelli E, Clatti S
Istituto di Radiologia dell'Universita, Florence, Italy
Radiol Med (Torino); 68(6):463-467 1982

Abdominal ultrasound (US) was used to assess Hodgkins lymphoma (87 patients) and non-Hodgkins lymphoma (45 patients). In three of these patients, US investigation was not possible; in the remaining 29, the results of US were verified with the aid of biopsy at laparotomy (39 patients) and transcutaneous biopsy (90 patients). Computed tomography was used in all cases. Liver involvement was correctly diagnosed by US in 13 cases, with 8 false negatives and 1 false positive. Focal pathology of the spleen (11 cases) was correctly diagnosed by US in 8 cases, with 3 false negatives. (13 Refs) (In ITA)

GENITOURINARY TUMORS

22. ULTRASONIC EXAMINATION OF THE ABDOMEN IN MALIGNANT DISEASE. PART 2. OTHER ABDOMINAL ORGANS, INCLUDING KIDNEY, STOMACH, AND PANCREAS.

John C
X-Ray Dept., South Wales Radiotherapy and Oncology Centre, Velindre Hosp., Cardiff, Wales
Radiography; 48(570):107-112 1982

Radiographic examination of the kidney is usually performed via iv urography. This test provides both anatomical and functional information in displaying the renal pelvis and calyces and associated organs, although there are distinct disadvantages associated with the standard tests. Delineation of space-occupying lesions as either simple cyst or solid tumor has been routinely accomplished by renal angiography. Renal ultrasonography, however, offers the advantages of being noninvasive, giving a gross anatomical outline with internal differentiation between medulla and cortex, being specific in defining a space-occupying lesion as either fluid filled or a solid tumor, and giving information regardless of the patient's blood urea or kidney condition. Compared to computerized tomographic scanning, ultrasonography is inexpensive and easy to perform. It has the advantage of demonstrating the kidney in two right angle planes or obliquely if required. Ultrasonographic scans are presented in case histories of patients with normal kidney, hydronephrosis, hypernephroma, nephroblastoma, carcinoma of the kidney and stomach, chronic pancreatitis, and interabdominal tumors. Ultrasonography can be a valuable complement to conventional lymphangiography of lymph chains in the abdomen suspected to be sites of metastatic deposition. (3 Refs)

HEAD AND NECK TUMORS

23. VALUE OF ECHOGRAPHY IN THE DIAGNOSIS OF SALIVARY GLAND TUMORS.

Vilas-Salas J, Ojeda-Gil J
Departement de Chirurgie, Hopital Clinique et Provincial, Barcelona, Spain
Lyon Chir; 78(3):177-181 1982

The most characteristic salivary gland echographic images are demonstrated in a review of five cases in which echography was used in the diagnosis of salivary gland diseases. Pathology which is illustrated and described includes undifferentiated parotid carcinoma, Wharthin's tumor, squamous cell carcinoma, tuberculous adenopathy and salivary gland stones. Based on a series of 20 cases in which the diagnostic accuracy of sialography was compared with echography, sialography was more accurate than echography even though in 3/20 cases, echography corrected the incomplete or erroneous diagnosis of sialography. In most cases (85%) the results of echography correlated with the diagnosis based on the pathology report. Echography is recommended as a useful method for establishing the differential diagnosis between solid and liquid masses, for differentiating between an intraglandular and extraglandular tumor, for delineating the tumor, for controlling the clinical evolution of the tumor, and for diagnosing benign or malignant tumors. (9 Refs) (In FRE)

24. VALUE OF FRONTAL SIALOTOMOGRAPHY IN THE DIAGNOSIS OF PAROTID TUMORS.

Ngoc Duc N, Scheffer P, Sarazin J, Molinier D
C.H.I.C., 40, allee de la Source, F 94190 Villeneuve-Saint-Georges, France
Rev Stomatol Chir Maxillofac; 83(2/3):163-166 1982

Eight patients (7 men and 1 woman, 17-80 yr old) with parotid tumors were subjected to standard sialography (SG) and frontal sialotomography (FST). The findings obtained by FST were of great diagnostic value in all 8/8 patients, while the SG findings were either negative or yielded questionable or insufficient diagnostic information. Mixed tumors were diagnosed histologically in three patients, cystadenolymphomas in five. (no Refs) (In FRE)

25. ECHOGRAPHIC ASPECTS OF THYROID AND PAROTID LOCALIZATION IN NON-HODGKIN LYMPHOMAS.

Bruneton JN, Caramella E, Boubili JL, Roux P, Abbes M, Demard F
Centre Antoine Lacassagne, 36 Voie Romaine, F-06054 Nice Cedex, France
ROEFO; 136(5):530-533 1982

The authors present four observations of rare localization of non-Hodgkin's lymphomas (3 cases of lymphoma of the thyroid, 1 case of lymphoma of the parotid), all of which were studied by echography. In two of the thyroid localizations, the echographic pattern was identical to that observed for nodes in non-Hodgkin lymphomas, and thus differs from that of cysts and necrotized or cystic tumors. In one case of secondary lymphoma of the thyroid, accompanied by diffuse enlargement of the gland but no histological proof, echography revealed only diffuse enlargement, without any anomaly in the echostructure. In the one case of lymphoma of the parotid, the echographic image was similar to that of a lymphomatous node, but it cannot be formally differentiated from the structure which can be observed for a mixed tumor or a cystic lymphangioma. (Author abstract) (25 Refs)

26. MEDULLARY CARCINOMA OF THE THYROID: RADIOGRAPHIC FEATURES OF A UNIQUE TUMOR.

McCook TA, Putman CE, Dale JK, Wells SA
(c/o Putman) Dept. Radiology, Box 3808, Duke Univ. Medical Center, Durham, NC, 27710
AJR; 139(1):149-155 1982

Medullary thyroid carcinoma occurs both sporadically and in families. When familial, it may be a component of the multiple endocrine neoplasia Type II syndromes characterized by medullary carcinoma of the thyroid (100% of patients), parathyroid hyperplasia (60% of patients), and pheochromocytoma (40% of patients). This unique neoplasm, whether sporadic or familial, is always associated with a biochemical marker, calcitonin, which defines the presence or absence of disease. Some patients exhibit radiographic features that may suggest the diagnosis and provide evidence of the extent of disease. Calcification in the primary tumor or cervical lymph nodes; mediastinal and hilar lymphadenopathy, sometimes calcified; fibronodular interstitial pulmonary disease, dense pulmonary nodules; lytic, blastic, or mixed bone lesions; and calcified liver metastases are evidence of the tumor. Associated pheochromocytomas are best sought initially by CT, but angiography may be required. Intestinal hypermotility is common. Despite functional hyperparathyroidism, associated radiographic abnormalities in the skeleton are seldom found. (Author abstract) (27 Refs)

HEMATOPOIETIC, RETICULOENDOTHELIAL AND LYMPHATIC TUMORS

27. LYMPHOGRAPHIC FINDINGS IN MULTIPLE MYELOMA.

Tallroth K, Somer K, Somer T
Dept. Radiology, Meilahti Hosp., Haartmaninkatu 4, 00290 Helsinki, Finland
Lymphology; 15(1):14-17 1982

The lymphographic appearances of the retroperitoneal lymph nodes in 10 patients with multiple myeloma have been analyzed. None of the patients had any signs of extramedullary involvement of myelomatosis before lymphography. In three cases irregular filling defects suggestive of myelomatous involvement were found. In one case they were close to a myelomatous bone lesion, whereas in the others the lymphographic abnormality was totally unexpected. In all three patients other nodes showed reactive hyperplasia. Such nonspecific hyperplasia was also encountered in three other cases. In two cases the myelomatous involvement of lymph node was detected before the diagnosis was recognized which is contrary to the belief that multiple myeloma involve nodes late in the disease. In addition to diagnostic aid the lymphographic demonstration of the myelomatous spread into lymph nodes may influence on the selection of the therapeutic approach to the disease. (Author abstract) (13 Refs)

RESPIRATORY TUMORS

28. PATHWAYS OF TUMOR SPREAD THROUGH THE LUNG: RADIOLOGIC CORRELATIONS WITH ANATOMY AND PATHOLOGY.

Heitzman ER, Markarian B, Raasch BN, Carsky EW, Lane EJ, Berlow ME
Dept. Radiology, State Univ. New York, Upstate Medical Center, Syracuse, NY, 13210
Radiology; 144(1):3-14 1982

The pathways of tumor spread through the lung are described and their significance for radiographic interpretation is illustrated. A key to understanding the spread of bronchogenic carcinoma is the realization that although the normal flow of lymph in the pulmonary lymphatics is centripetal, lymphatic obstruction can cause reversal of flow. As a result, tumor cells are commonly carried centrifugally to the periphery in lymphatics or the connective tissue around them, and remote pleural involvement, secondary parenchymal masses, or satellite nodules may develop. Failure to appreciate peripheral spread of tumor has negative consequences for tumor staging, surgery, and radiotherapy. In the absence of hilar node involvement causing obstruction, long line shadows more than 0.5 inch (1.25 cm) in length proximal to a peripheral mass very infrequently represent tumor. (Author abstract) (37 Refs)

29. RADIOLOGY OF THE SUPERIOR SEGMENT OF THE LOWER LOBE. A REGIONAL PERSPECTIVE, INTRODUCING THE B6 BRONCHUS SIGN.

Friedman PJ
Dept. radiology, Univ. California, Sch. Medicine, San Diego, CA
Radiology; 144(1):15-25 1982

The radiological findings of atelectasis, consolidation, or mass lesions in the superior segment of the lower lobe of the lung (B6 in Boyden's classification) are analyzed. Cases were collected over several yr and supplementary series were assembled to study the configurations of the segmental bronchi, the right oblique fissure, and the left pulmonary artery in lateral projection. The upper part of the right oblique fissure could be distinguished from the horizontal fissure on frontal radiographs by position and angulation; its visualization indicated atelectasis or displacement of the superior segment. Visualization was much less common on the left. Consolidation produced a visible superior segment air bronchogram (the B6 sign) much more often on the left, where the bronchus is usually larger. Orientation and position of the bronchus permit its identification. Other key anatomic landmarks were the descending aorta on frontal radiographs and the posterior margins of the left pulmonary artery and bronchus intermedius on lateral views. (Author abstract) (10 Refs)

30. PLURIDIRECTIONAL VERSUS LINEAR MOTION IN 55-DEGREE OBLIQUE TOMOGRAPHY OF THE PULMONARY HILUS.

Matalon TA, Sakowicz BA, Mintzer RA, Panella JS, Lin PJ, Claycamp HG
Dept. Diagnostic Radiology, Northwestern Univ. Medical Sch., Chicago, IL
Appl Radiol; 11(4):49-51,55-58 1982

Various tomographic motions in diagnosis of the pulmonary hilus were compared in 50 examinations of live patients and in studies using a chest phantom. Patients had diseases including squamous cell carcinoma and pulmonary metastases of breast cancer. Linear tomography was superior to pluridirectional tomography in 55-degree oblique tomography of the pulmonary hilus. This was probably the result of shorter exposure time with linear tomography and the lack of blurring produced by nonlinear motions. Modulation transfer function was not an accurate predictor of image quality of 55-degree posterior oblique tomograms of the hili. (10 Refs)

31. PERFUSION LUNG SCAN. AN AID IN DETECTION OF LYMPHANGITIC CARCINOMATOSIS.

Bates SE, Tranum BL
(c/o Tranum), Suite 401, 500 So. Univ., Little Rock, AR, 72205
Cancer; 50(2):232-235 1982

Lymphangitic carcinomatosis is usually a late manifestation of metastatic disease. The patient usually presents with cough or dyspnea, and the chest radiograph is often nondiagnostic. Two patients are presented who developed symptoms while on adjuvant chemotherapy. Both had abnormal perfusion lung scans. One had matching ventilation defects; the other a normal ventilation study. Biopsy revealed metastatic carcinoma, in one case tumor was seen in both the pulmonary lymphatics and arterioles; in the other, tumor was identified but the site could not be specified. The radionuclide lung scan is a technique which can speed diagnosis and institution of therapy in lymphangitic carcinomatosis. (Author abstract) (11 Refs)

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COMPUTER ASSISTED TOMOGRAPHY

1. CLINICAL NMR IMAGING OF THE BRAIN: 140 CASES.

Bydder GM, Steiner RE, Young IR, Hall AS, Thomas DJ, Marshall J, Pallis CA, Legg NJ
(c/o Steiner) Dept. Diagnostic Radiology, Royal Postgraduate Medical Sch., Du Cane Road, London W12 OHS, England
AJR; 139(2).215-236 1982

Cranial nuclear magnetic resonance (NMR) scans were performed on 13 healthy volunteers and 140 patients with a broad spectrum of neurologic disease and compared with x-ray computed tomography (CT) scans. The NMR scans included a variety of sequences reflecting proton density, blood flow, T1, and T2 as well as transverse, sagittal, and coronal images. White matter, gray matter, and cerebrospinal fluid were clearly distinguished in the normal brain with inversion-recovery (IR) sequences, and normal progressive myelination was demonstrated in infants and children. Acute hemorrhages displayed short T1 values, but other pathologic processes were associated with long T1 values. Cysts had very long T1 values. Spin-echo (SE) sequences showed increased values of T2 in a variety of conditions and highlighted lesions against the relatively featureless background of the remaining brain. With inversion-recovery scans, different stages of infarction were recognized in the hemispheres. NMR was more useful than CT in demonstrating brainstem infarction. The white matter lesions in demyelinating diseases were well demonstrated with NMR scans. Benign tumors were well seen and usually had shorter T1 values than malignant tumors. Mass effects from tumors were generally better demonstrated with NMR than with CT, including more subtle mass effects such as displacement of the external capsule. Abnormalities were seen in diseases of the basal ganglia, including marked atrophy of the head of the caudate nucleus in Huntington chorea. Advantages of NMR imaging include the high level of gray-white matter contrast, lack of bone artifact, variety of possible sequences, transverse, sagit-

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tal, and coronal imaging, sensitivity to pathologic change, and lack of known hazard. Disadvantages include lack of bone detail, limited spatial resolution, lack of contrast agents, and cost. NMR seems to be a potentially important addition to existing techniques of neurologic diagnosis. (44 Refs)

2. IMAGING OF BRAIN TUMORS AFTER ADMINISTRATION OF L-(N-13)GLUTAMATE: CONCISE COMMUNICATION.

Reiman RE, Benua RS, Gelbard AS, Allen JC, Vomero JJ, Laughlin JS
Biophysics Lab., Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
J Nucl Med; 23(8):682-687 1982

Cyclotron-produced L-(N-13)glutamate was used to visualize malignant intracranial tumors in 12 pediatric patients who had evidence of recurrent disease as documented by computed transaxial tomography (TCT). Imaging was performed using a rectilinear scanner, gamma camera, or a positron-emission tomograph (PET). The results indicate that N-13 is rapidly taken up by a majority of brain tumors following the administration of L-(N-13)glutamate, and that N-13 uptake is correlated with breakdown of the blood-brain barrier as demonstrated by contrast TCT or pertechnetate (Tc-99m) studies. The feasibility of using this agent in conjunction with PET is established. (Author abstract) (13 Refs)

3. DIGITAL SUBTRACTION ANGIOGRAPHY AND DYNAMIC COMPUTED TOMOGRAPHY IN THE EVALUATION OF ARTERIOVENOUS MALFORMATIONS AND HEMANGIOBLASTOMAS OF THE SPINAL CORD.

Di Chiro G, Rieth KG, Oldfield EH, Tievsky AL, Doppman JL, Davis DO
Neuroradiology and Computed Tomography Section, Clinical Center, NIH, Building 10, Bethesda, MD, 20205
J Comput Assist Tomogr; 6(4):655-670 1982

Digital subtraction angiography (DSA) and dynamic computed tomography (DCT) were used in the evaluation of five patients with surgically approachable vascular lesions of the spinal cord, including three arteriovenous malformations (AVM), one hemangioblastoma, and one lesion with a questionable radiographic-surgical diagnosis (AVM? hemangioblastoma?). Digital subtraction angiography was positive in three of the five cases and was particularly informative in the patient with hemangioblastoma, even vis a vis arteriography, which is considered the definitive diagnostic test for these lesions. Dynamic computed tomography was positive in four of the five cases. From this preliminary study, DSA and DCT appear to be useful screening and follow-up procedures which, in a number of aspects, complement each other. (Author abstract) (14 Refs)

4. THE EMPTY SELLA AND PITUITARY ADENOMAS: A THEORY ON THE CAUSAL RELATIONSHIP.

Bjerre P, Gyldensted C, Riishede J, Lindholm J
Dept. Neurosurgery, Div. Neuroendocrinology, NK 2091, Rigshospitalet, DK-2100 Copenhagen, Denmark
Acta Neurol Scand; 66(1):82-92 1982

Enlargement of the sella was studied in 44 patients by computed tomography (CT) with air contrast enhancement. Solid tumors were found in 24 patients. The sella was completely or partially empty in 20 patients (9 men, 24-69 yr old, median 50 yr; 11 women 27-66 yr old, median 33 yr). CT indicated water absorption values for the entire sella in 4 patients and part of the sella in 16 patients. Intrasellar enhancement was observed in 13/16 patients with partially empty sellas. Ten patients had had previous acute episodes with signs and symptoms including headache, nausea, vomiting, mental confusion, impaired consciousness, hemiparesis, hemiparesthesia, ophthalmoplegia, fever, and stiff neck. The median age was 48 yr for seven men and three women with such episodes and 33 yr for two men and eight women without such episodes. Eight patients had unilateral sellar ballooning, bony destruction, or both . In six of these patients CT indicated the corresponding portion of the sella was empty. Contrast studies in seven patients produced normal findings in three and showed intrasellar cisternal herniation in four. Findings in patients with empty sellas are consistent with the hypothesis that empty sella may result from an infarction involving all or part of a pituitary adenoma. The infarction may or may not cause neurological symptoms. Late effects may include rhinorrhea or hydrocephalus. (37 Refs)

5. APPLICATION OF CT IN DIAGNOSING CARCINOMA OF THE MAXILLARY SINUSES. PART 1: CLINICAL EVALUATION OF CT AND FRONTAL TOMOGRAPHY IN DIAGNOSING CARCINOMA OF THE MAXILLARY SINUSES.

Matsubara K
Dept. Radiology, Nagoya Univ. Sch. Medicine, Nagoya, Japan
Nagoya J Med Sci; 44(3/4):57-67 1982

The diagnostic accuracy of computed tomography (CT) and frontal tomograms (FT) in carcinoma of the maxillary sinuses was compared to radiographic and surgical results in 20 patients (12 males, 8 females; 38-68 yr old). All 20 patients underwent total maxillectomy: 17 had squamous cell carcinoma, 2 transitional cell carcinoma, and 1 undifferentiated carcinoma. CT and FT were interpreted by five different radiologists who were not aware of the surgical findings. Tumor densities of the paranasal sinuses, nasal cavities, orbits, infratemporal fossas, and sc tissues of the cheek were evaluated along with the bone defects of the walls of the maxillary sinuses and orbits. The diagnostic accuracy of CT was greater than that of FT because CT can be used specifically for transverse plane tomography. Four cases were erroneously diagnosed as being positive for bone defects of the posterior-lateral walls of the maxillary sinuses by CT because of the time interval between CT examination and surgery, problems in image processing, or partial vol phenomenon. Accuracy in detecting tumor density by CT was the same as or greater than that of FT of all regions, particularly in the sc tissues of the cheek, the infratemporal fossas, and orbits. CT detected bone defects of the posterior-lateral walls of the sinuses and the tumor density of the orbits and the infratemporal fossas, which were not detected by FT, inspection, and/or palpation. The combination of CT and FT was significantly more accurate than that of either method alone in examination of the inferior walls of the sinuses. (21 Refs)

6. EXPERIMENTAL STUDY OF MAXILLARY CT. APPLICATION OF CT IN DIAGNOSING CARCINOMA OF THE MAXILLARY SINUSES. PART 2: AN EXPERIMENTAL STUDY OF PITFALLS ENCOUNTERED WHEN DIAGNOSING CARCINOMA OF THE MAXILLARY SINUSES WITH CT.

Matsubara K
Dept. Radiology, Nagoya Univ. Sch. Medcine, Nagoya, Japan
Nagoya J Med Sci; 44(3/4):69-81 1982

Performances of various computed tomography (CT) scanners were studied in a phantom simulating the transverse section of the maxillary sinuses (MS). Experiments were conducted under various conditions: the simulated bilateral MS and nasal cavity (NC) were filled with air (Experiment 1), the right MS was filled with water and NC and left MS with air (Experiment 2), the right MS and NC were filled with water and left MS with air (Experiment 3), and all simulated cavities were filled with water (Experiment 4). CT images of the phantom taken by three CT scanners are shown. The walls made of acrylic plates (1 mm thick) and aluminum plates (0.1 mm) placed between water and air occasionally did not form any peak CT values. Results suggested that thin bony walls placed between water and substances with low CT values such as air and fat may disappear in CT images. Significant differences in CT values involving the placement of the medial wall of the right MS were observed in Experiments 1 and 2. Significant differences in CT values were observed in Experiments 2 and 3 in the medial wall of the left MS. Disappearance of thin bony wall may occur more frequently in clinical cases because the patients may be oblique to the planes of the scan causing the 'partial vol phenomena'. Patient movement may also directly affect CT images. The thickness of the walls calculated from CT values were greater than their true thickness. (10 Refs)

7. COMPUTED TOMOGRAPHY OF THE TRACHEA: NORMAL AND ABNORMAL.

Gamsu G, Webb WR
Dept. Radiology (S-358), Univ. California Medical Center, San Francisco, CA, 94143
AJR; 139(2):321-326 1982

The trachea was investigated by means of computed tomography (CT) in 50 patients without tracheal or mediastinal abnormalities and in 39 patients with various diseases of the trachea. The variations in the normal CT appearances of the trachea and surrounding structures are described. CT did not provide additional information in the detection or characterization of tracheal stenosis beyond that obtained from more conventional studies, including tomography and positive-contrast tracheography. In patients with a saber-sheath trachea, CT demonstrated the abnormal configuration of the tracheal cartilages and abnormal collapse of the trachea on forced expiration. In patients with primary or secondary neoplasms involving the trachea, CT was most accurate in defining the intraluminal presence of tumor, the degree of airway compression, and the extratracheal extension of tumor. CT can be of value in determining the resectability of primary tracheal neoplasms and the planning of radiation therapy in metastatic lesions to the trachea and surrounding mediastinum. (Author abstract) (20 Refs)

8. COMPUTED TOMOGRAPHY OF BRONCHIAL ADENOMAS.

Naidich DP, McCauley DI, Siegelman SS
Dept. Radiology, New York Univ. Sch. Medicine, 550 First Ave., New York, NY, 10016
J Comput Assist Tomogr; 6(4):725-732 1982

Computed tomography (CT) was used to evaluate nine patients with bronchial adenomas; five carcinoid tumors and four adenoid-cystic carcinomas. Seven patients with lesions of the trachea or proximal bronchi presented with wheezing, hemoptysis, or obstructive pneumonitis. In such cases, CT was effective in displaying the total extent of infiltrating lesions including the extraluminal component. The cases of adenoid-cystic carcinoma of the bronchi demonstrated extraluminal spread in a pattern indistinguishable from bronchogenic carcinoma. In one patient, CT demonstrated an exclusively endobronchial carcinoid tumor, and conservative resection was planned and accomplished. In two cases of carcinoid tumors that presented as solitary pulmonary nodules adjacent to bronchi in the midlung zone, CT served as a road map for the bronchoscopist. Computed tomography has been employed in the postoperative patient to evaluate for possible recurrence. (Author abstract) (13 Refs)

9. COMPUTED TOMOGRAPHY AND ROUTINE CHEST RADIOGRAPHY IN OAT CELL CARCINOMA OF THE LUNG.

Lewis E, Bernardino ME, Valdivieso M, Farha P, Barnes PA, Thomas JL
Dept. Diagnostic Radiology, Univ. Texas System Cancer Center, M.D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
J Comput Assist Tomogr; 6(4):739-745 1982

Computed tomography (CT) scans of the chest and routine posteroanterior and lateral chest films were compared in 32 patients with pathologically proven oat cell carcinoma of the lung. Nineteen of the 32 patients were examined prior to any form of therapy. Overall, CT gave more information about the extent of disease. The significance of this information may be of little value because the routine chest films also demonstrated mediastinal involvement, although to a lesser degree. Computed tomography of the chest should not be the initial diagnostic staging procedure in oat cell carcinoma, but used selectively. It can be quite useful in patients who have a partially opacified lung, possibly for the evaluation of mediastinum after therapy, and for the evaluation of possible abdominal metastases. (Author abstract) (24 Refs)

10. TECHNICAL ACCURACY AND CLINICAL EFFICACY OF THORACIC COMPUTED TOMOGRAPHY.

Yee ES, Raper SE, Thomas AN, Ebert PA
Dept. Surgery (112), Veterans Admin. Medical Center, 4150 Clement St., San Francisco, CA, 94121
Am J Surg; 144(1):35-43 1982

The technical accuracy and clinical efficacy of thoracic CAT scans in 302 surgical patients were retrospectively reviewed. We conclude that thoracic CAT scans should be ordered selectively since the technical accuracy of existing radiographic studies in detecting disease is equally high (greater than 90%) and the clinical efficacy does not differ substantially (less than 16%). The accuracy of CAT scans in staging carcinoma (the extent of the lesion or nodes) is only 58%. The technical limitations of these scans include (1) a lack of specificity because of the high incidence of false-positive lymph nodes, (2) a low or unreliable yield from needle aspiration, and (3) unreli-

able findings due to altered anatomy by previous treatment or associated disease. Surgical treatment regarding operability and resectability should not be solely based on CAT scans. These scans appear to be a useful screening test for chronic vascular disease and localization of obscure thoracic infections. (Author abstract) (29 Refs)

11. COMPUTED TOMOGRAPHY OF CARCINOMA OF THE AMPULLA OF VATER.

Inamoto K, Tanaka S, Yamazaki H, Suzuki E, Ishikawa Y
Dept. Radiology, Hyogo Coll. Medicine, 1-1, Mukogawa-cho, Nishinomiya, Hyogo 663, Japan
ROEFO; 136(6):689-693 1982

CT findings were studied in 14 cases with carcinoma of the ampulla of Vater which were all proved by surgery. At preoperation period, only 4 cases (29%) were accurately diagnosed and other 10 cases (71%) were misinterpreted on CT. The most concomitant error was a confusion with the pancreatic head carcinoma (57%). Although a mass was retrospectively visualized in four cases, indirect signs were rather prominent, such as enlargement of the pancreatic head (57%), dilatation of the pancreatic duct (71%) and that of the common bile duct (79%). (Author abstract) (8 Refs)

12. PANCREATIC CYSTS CAUSED BY CARCINOMA OF THE PANCREAS: A PITFALL IN THE DIAGNOSIS OF PANCREATIC CARCINOMA.

Itai Y, Moss AA, Goldberg HI
(c/o Moss) Dept. Radiology, S-358, Univ. California, San Francisco, San Francisco, CA, 94143
J Comput Assist Tomogr; 6(4):772-776 1982

Pancreatic cysts were diagnosed on computed tomography (CT) in 6 (8%) of 73 histologically proven pancreatic carcinomas. In three of a total of seven cases studied, the initial CT diagnosis was pancreatitis. The CT features of cysts secondary to pancreatic carcinoma were identical to those of pseudocysts in pancreatitis. All cases had masses of varying sizes suggestive of carcinoma or pancreatitis. Even in retrospect, two cases were difficult to differentiate from pancreatitis with pseudocysts. Our results indicate that whenever pancreatic cysts are encountered in patients of cancer age without a history of pancreatitis, further examinations including percutaneous aspiration biopsies should be performed to exclude malignancy. (Author abstract) (28 Refs)

13. CT FEATURES OF CALCIFICATION IN ABDOMINAL NEUROBLASTOMA.

Araki T, Itai Y, Iio M
Dept. Radiology, Univ. Tokyo, Hongo 7-3-1, Bunkyo, Tokyo, Japan
J Comput Assist Tomogr; 6(4):789-791 1982

The plain radiographs and computed tomography (CT) scans of 12 children with abdominal neuroblastoma were reviewed to evaluate the incidence and shape of calcification in the tumor. Calcifications were detected in 7 cases by plain radiographs and in 10 by CT. Small dotted and thin ring calcifications were better shown by CT. Ring calcification does not appear to be as rare as has been reported. It is emphasized that all ring calcifications in the vicinity of adrenal glands are not benign. (Author abstract) (14 Refs)

14. PREOPERATIVE CT EVALUATION OF ADRENAL GLANDS IN NON-SMALL CELL BRONCHOGENIC CARCINOMA.

Nielsen ME, Heaston DK, Dunnick NR, Korobkin M
(c/o Heaston) Dept. Radiology, Duke Univ. Medical Center, Box 3808, Durham, NC, 27710
AJR; 139(2):317-320 1982

Preoperative chest computed tomographic (CT) scans in 84 patients with biopsy-proven non-small cell bronchogenic carcinoma were reviewed. At least one adrenal gland was visualized in 70 of these. Evidence of a solid adrenal mass was present in 18 (14.5%) glands in 15 (21.4%) patients. Percutaneous needle aspiration under CT guidance confirmed metastatic malignancy in the four patients who were biopsied. Because the documented presence of adrenal metastasese in non-small cell lung cancer makes surgical resection or local irradiation inappropriate, it is recommended that both adrenal glands in their entirety be specifically included whenever a staging chest CT examination is performed in patients with such tumors. Percutaneous needle biopsy for pathologic confirmation of the nature of solid adrenal masses discovered in this process is also useful. (Author abstract) (18 Refs)

15. CT FINDINGS IN ADDISON'S DISEASE.

Doppman JL, Gill JR, Nienhuis AW, Earll JM, Long JA
Diagnostic Radiology Dept., NIH, Clinical Center, Building 10, Room 6S211, Bethesda, MD, 20205
J Comput Assist Tomogr; 6(4):757-761 1982

The computed tomographic findings in five patients with depleted adrenal cortical reserve were evaluated. A single patient with idiopathic adrenal atrophy revealed small adrenal remnants bilaterally. Three patients with tuberculosis demonstrated dense calcification in one or both adrenal beds without evidence of normal glandular remnants. One patient with active histoplasmosis showed enlarged nonhomogeneous glands of normal contour, a possible clue in distinguishing acute granulomatous adrenalitis from primary or secondary intraadrenal tumors. (Author abstract) (16 Refs)

16. LEUKEMIC INVOLVEMENT OF THE KIDNEY IN CHILDREN: CT FEATURES.

Araki T
Dept. Radiology, Univ. Tokyo Hosp., 7-3-1, Hongo, Bunkyo-ku, Tokyo, Japan
J Comput Assist Tomogr; 6(4):781-784 1982

Leukemic involvement of the kidney was demonstrated by computed tomography in five children. The findings were bilateral diffuse nephromegaly (2), unilateral diffuse nephromegaly (1), discrete intrarenal mass lesion (1), and a hilar mass lesion (1). In three children undergoing local radiation therapy, the leukemic kidneys responded well to treatment. Computed tomography appeared to be valuable in the diagnosis of leukemic renal involvement, in radiation planning, and in the evaluation of the therapeutic effects. (Author abstract) (15 Refs)

17. COMPUTED TOMOGRAPHY IN MALIGNANT FIBROUS HISTIOCYTOMA.

Paling MR, Hyams DM
Diagnostic Radiology Dept., NIH, Clinical Center, Building 10, Room 6S211, Bethesda, MD, 20205
J Comput Assist Tomogr; 6(4):785-788 1982

The computed tomographic findings in 11 cases of malignant fibrous histiocytoma are discussed. The typical appearance of

the eight primary tumors imaged was of a poorly marginated mass with an attenuation coefficient slightly lower than that of normal muscle. Central tumor necrosis was detected in three cases. Three of five abdominal tumors showed involvement of adjacent soft tissue structures, and one demonstrated destruction of adjacent bone. The nonspecific appearance of these tumors prevented their reliable differentiation from other soft tissue sarcomata. (Author abstract) (10 Refs)

18. CRANIAL COMPUTED TOMOGRAPHY IN THE TUMOROUS STAGE OF MYCOSIS FUNGOIDES.

Vitek JJ, Duvall ER
Div. Neuroradiology, Dept. Diagnostic Radiology, Univ. Alabama in Birmingham, 619 South 19th St., Birmingham, AL, 35233
J Comput Assist Tomogr; 6(4):702-705 1982

Central nervous system (CNS) involvement by mycosis fungoides (MF) is rare. This is especially true of metastatic parenchymal involvement. Findings in two patients having the tumorous stage of MF are described. Multiple, well delineated, homogeneously and markedly enhancing nodules were seen in these two patients. The computed tomographic (CT) features of CNS involvement by MF are not specific. The differential diagnosis is discussed. By using CT in patients with MF, we will eventually be able to determine the incidence of CNS involvement in this condition. (Author abstract) (16 Refs)

19. POST-THERAPY CT-DETECTED MASS IN LYMPHOMA PATIENTS: IS IT VIABLE TISSUE?

Lewis E, Bernardino ME, Salvador PG, Cabanillas FF, Barnes PA, Thomas JL
Univ. Texas M.D. Anderson Hosp. and Tumor Inst., 6723 Bertner, Houston, TX, 77030
J Comput Assist Tomogr; 6(4):792-795 1982

The demonstration by computed tomography (CT) of enlarged nodes and/or masses in lymphoma patients has been interpreted as indicating that active disease is present. Four cases are presented in which either biopsy or laparotomy of a CT-detected mass after therapy revealed fibrous tissue with no evidence of viable neoplasm. These four cases demonstrate the possible pitfall of diagnosing viable lymphoma in masses detected by CT after therapy. (Author abstract) (9 Refs)

20. CONTRAST MEDIA IN COMPUTED TOMOGRAPHY.

Felix R, Kazner E, Wegener OH, Claussen CD, Grumme T, Jarchow H, Kuhn K, Speck U
Dept. Radiology, Klinikum Charlottenburg, Freie Universitat Berlin, Berlin, W. Germany
Excerpta Med Int Congr Ser (561): 302 pp., 1982.

Current aspects in computed tomography (CT) technology, clinical and experimental data on conventional contrast media (CM), development and evaluation of future CM, and CM in CT of neurologic and orbital diseases, the thorax, the retroperitoneal and pelvic space, and upper abdomen were discussed. Administration of contrast agents was reviewed and recommendations for the proper use of x-ray CM in CT were developed. Commercially available contrast agents and substances in the developmental and testing stage were discussed in detail. CT enhances the diagnostic possibilities of contrast radiography, and achieves its diagnostic importance when combined with CM. Maximizing hepatic contrast enhancement with a particulate contrast agent in CT, rare earth contrast agents in hepatic CT, iodinated fat emulsion, iosefamate meglumine, water-contrast media, nontoxic contrast agents for CT, and the development and evaluation of future CM (macromolecules and perfluorinated compounds) are discussed. Normal and pathologic CT appearances are presented of the brain, orbit, facial skull, pituitary gland, acoustic neuromas, skull base, spinal canal, lumbrosacral spine, spinal lesions, thorax, heart, mediastinum and lung, kidneys and adrenals, spleen in patients with lymphoma, pelvic organs, liver, gastrointestinal system, and pancreas. (430 Refs)

CENTRAL NERVOUS SYSTEM TUMORS

21. INTRAOPERATIVE USE OF REAL-TIME ULTRASONOGRAPHY IN NEUROSURGERY.

Chandler WF, Knake JE, McGillicuddy JE, Lillehei KO, Silver TM
Dept. Surgery, Univ. Michigan Medical Center, Ann Arbor, MI
J Neurosurg; 57(2):157-163 1982

The authors' experience with the intraoperative use of real-time ultrasonography during 21 neurosurgical procedures is reported. These procedures include neoplasm surgery in 18 cases, treatment of an arteriovenous malformation in 1 case, and ventricular catheter placement for hydrocephalus in 2 cases. In each of the neoplasm cases, the tumors were imaged just as well through the intact dura as on the brain surface itself. There were no cases in which the pathology could not easily be identified. The use of portable intraoperative ultrasonography in sterile coverings has proven to be extremely useful in localizing small subcortical neoplasms, as well as locating the solid and cystic portions of deep lesions. It has assisted in guiding needles for both biopsy and aspiration. It has also accurately identified and guided Silastic catheters during their placement in the ventricular system in cases of hydrocephalus. The authors have found real-time ultrasonography to be an important new tool in the operating room and will continue to rely on its imaging ability during selected procedures in the future. (Author abstract) (25 Refs)

22. SPINAL LEPTOMENINGEAL INFILTRATION BY SYSTEMIC CANCER: MYELOGRAPHIC FEATURES.

Kim KS, Ho SU, Weinberg PE, Lee C
Dept. Radiology, Northwestern Univ. Medical Sch., Northwestern Memorial Hosp., Superior St. and Fairbanks Ct., Chicago, IL, 60611
AJR; 139(2):361-365 1982

Five cases of spinal leptomeningeal infiltration by systemic cancer are presented and myelographic features are discussed with a review of the literature. Common characteristic features are parallel longitudinal striations due to thickened nerve roots in the cauda equina and bizarre filling defects with varying degrees of blocks, resembling arachnoiditis. Another pattern described in the literature consists of multiple nodular filling defects along the nerve roots of the cauda equina. (Author abstract) (13 Refs)

BREAST TUMORS

23. MAMMOGRAPHIC DETECTION OF BREAST CANCER.

Homer MJ
Tufts-New England Medical Center, Boston, MA
Clin Obstet Gynecol; 25(2):393-400 1982

Mammography, whether film or xerography, is a complementary examination to breast palpation in the detection of breast cancer. According to the guidelines of the American Cancer Society, mammography should be performed on every asymptomatic woman, at least once, over the age of 35. Annual mammography after 50 is also advised. The radiation dose to the breast from current equipment is so low as to not be considered a factor in denying a woman this screening examination. Mammography has a role in evaluating the woman with solitary and multiple breast masses. It is the only proved reliable modality able to detect nonpalpable breast cancers and small tumors less than 2 cm in size. All nonpalpable lesions should be excised by directed biopsy, using a preoperative localization technique. (Author abstract) (14 Refs)

24. PREOPERATIVE MARKING OF IMPALPABLE SUSPECTED MALIGNANT MAMMOGRAPHY FINDINGS.

Guilotta U, Kramann G, Henckel von Donnersmarck G, Dittler HJ
Inst. f. Rontgendiagnostik, Klinikum rechts der Isar, Techn. Univ., Ismaninger Str. 22, D-8000 Munchen 80, W. Germany
MMW; 124(26):623-626 1982

Preoperative marking of mammary lesions suspected to be malignant was performed 15x on 14 women. With one exception the lesions were nonpalpable. Mammography was performed with the breast held in place by a wire-grid plate, the mammograph was obtained in a cranio-caudal direction, and the breast was held in place until the film was developed. The mammograph was used to localize the lesion, a marking cannula was introduced into the lesion by puncture, and a lateral mammograph was then obtained to facilitate adjustment of the depth of penetration. When the tip of the cannula was correctly located, a wire stylette with a barbed end was passed through the cannula and the cannula was withdrawn. During surgery, the tissue surrounding the end of the stylette was excised. Surgical localization of the lesion presented no problems in any of the patients. The stylette was correctly located in the lesion in 13/15 instances. In two instances the puncture missed the lesions; however, these lesions were easily located during surgery. The various lesions located by the procedure described were identified histologically as five carcinomas, five adenoses or sclerotic adenoses, four fibrocystic mastopathies, and one fibroadenoma; one cyst was drained during puncture and was not treated surgically. The marking procedure employed in the present study was considered to be more accurate than external methods of marking or injection of dyes. (24 Refs) (In GER)

25. BREAST THERMOGRAPHY.

Nyirjesy I
Georgetown Univ. Sch. Medicine, Washington, DC
Clin Obstet Gynecol; 25(2):401-408 1982

Techniques of breast thermography (BT), the 'normal' thermogram (TG), analysis and classification of a TG, factors influencing TGs, TGs and breast carcinoma, and clinical considerations are presented. A 'normal' TG, found in approx 65% of gynecologic patients, reveals that the breasts are cooler than the sternum, the supraclavicular fossae, the inframammary folds, the upper thorax, and the axillae. TGs must be analyzed by noting anatomic and vascular symmetry, by measuring temperature differences between comparable areas of the two breasts, between the warmest area of a breast and the background, and by observing the normal round contour of the breast, the loss of which is called 'edge sign'. Repeat TGs must be compared to previous studies and any observed change must be noted. Factors influencing TGs are breast symmetry, breast size, age, parity, history of breast feeding, menstrual cycle, pregnancy, lactation, exogenous steroid therapy, menopause, danazol therapy, family history of breast carcinoma, benign breast disease, and time. Quantitative BT has been used as an ancillary method to complete gynecologic evaluations on all symptomatic and asymptomatic patients willing to participate. Carcinoma was detected in 34/2,799 patients who had a total of 6,459 thermographic examinations. Twenty-four (70%) of the carcinomas were detected in patients under 50 yr of age, who, according to current guidelines, would not have qualified for screening mammography. BT is not a specific test for carcinoma detection, nor for the diagnosis of any other breast disease. BT is a sensitive marker of local thermal and vascular abnormalities, which can be helpful to focus attention on specific patients and for research. (15 Refs)

26. ULTRASONIC DETECTION OF BREAST CANCER.

Kobayashi T
Sch. Medicine, Univ. Occupational and Environmental Health, Kitakyushu City, Japan
Clin Obstet Gynecol; 25(2):409-423 1982

After review of the history of breast echography, a detailed examination is presented of its use in the diagnosis of lesions of the breast. The technique of the water-bag examination of the breast is presented and the diagnostic criteria for the differentiation of benign from malignant lesions are outlined. Typical echograms are illustrated for benign cyst, fibrocystic disease, fibroadenoma and cystosarcoma phyllodes. Also illustrated are typical echograms in malignant disease, such as scirrhous and medullary carcinomas. Expanded echography improves diagnostic accuracy in early breast cancer, especially in tumors less than 2 cm. The technique for manual-scan echography is outlined. Breast echography by these methods is a noninvasive, quickly performed procedure that presents no radiation hazard like mammography and has appreciably high diagnostic accuracy of about 85-90%. (20 Refs)

GASTROINTESTINAL TUMORS

27. RADIOLOGIC DIAGNOSIS OF EARLY GASTRIC CANCER BY ROUTINE DOUBLE-CONTRAST EXAMINATION.

Montesi A, Graziani L, Pesaresi A, De Nigris E, Bearzi I, Ranaldi R
Servizio di Radiologia, Ospedale Generale Regionale 'Umberto I', P.zza Cappelli, 1-60100 Ancona, Italy
Gastrointest Radiol; 7(3):205-215 1982

The frequency of prospective detection of early gastric cancer (EGC) was determined for 4,538 routine double-contrast examinations (DCE) of the stomach. The ability of DCE to diagnose EGC was evaluated by comparing radiographs with pathologic specimens. In 4,538 DCE, 8 gastric lesions histologically classified as EGC (1 Type I, 4 Type IIc, 3 Type III) were prospectively diagnosed before endoscopy. In another four cases of EGC (3 Type IIc and 1 Type IIc + IIa),

false negative results were obtained by DCE. The radiological diagnosis of gastric cancer was prospectively made before endoscopy in 103 cases, with histologic verification in 75. The rate of EGC in all radiologically diagnosed cancer was therefore 7.7%; it was 10.6% in verified cases. Of the eight cases diagnosed as EGC, one was a polypoid lesion and seven were depressed, ulcer-like lesions. Comparison of radiologic and pathologic findings for the 12 cases of EGC (8 prospectively diagnosed, 4 false negative cases) showed that the one case of Type I EGC was pathologically similar to polypoid lesions. In the other 11 cases, a depressed area was observed. Radiating and altered folds in the surgical specimens of five cases were observed radiologically in only 3/5 cases. Of the 12 cases of EGC, 5 were multifocal, but the 21 satellite foci of EGC were very small with diameters of less than 0.5 cm. Of the 21 foci, only 3 Type IIc were identifiable by DCE. The results indicated that the rate of prospective radiologic detection of EGC by routine DCE was significant. Detection of a gastric polyp rarely corresponded to EGC, while detection of a gastric ulcer showed a correlation with EGC. (10 Refs)

28. GASTRIC LEIOMYOSARCOMAS.

Nauert TC, Zornoza J, Ordonez N
(c/o Zornoza) Dept. Diagnostic Radiology, Univ. Texas, M. D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
AJR; 139(2):291-297 1982

A retrospective study was made of 28 patients who had gastric leiomyosarcomas to identify histologic patterns and radiologic appearances. Three histologic patterns were identified: spindle cell, epithelioid, and pleomorphic. The histopathologic type of tumor did not correlate with the size, the grade of malignancy, or the location of the mass within the stomach. All but one tumor presented as a submucosal mass by barium contrast examination. Ulceration was present in 17 of 28 patients. Sonographic examination in six patients and computed tomography (CT) in one provided further information about the degree of extragastric extension. Sonographically the masses were echogenic in three patients, hypoechoic in two, and anechoic in one. Surgery remains the only curative therapy and surgical excision is recommended regardless of mass size. (Author abstract) (17 Refs)

29. COLORECTAL CANCER: RADIOLOGICAL ASSESSMENT.

Nolan DJ
Dept. Diagnostic Radiology, John Radcliffe Hosp., Oxford OX3 9DM, England
Recent Results Cancer Res; 83:77-85 1982

Radiological assessment in the diagnosis and management of colorectal cancer is reviewed. Plain abdominal radiographs should be the initial investigation in patients who present with symptoms of intestinal obstruction. The barium enema examination is sensitive enough to detect small polyps of the colon as well as cancers. A double contrast barium enema is contraindicated if there is suspected perforation of the colon or toxic megacolon. The single-contrast enema can sometimes be helpful in confirming the presence of a carcinoma in the cecum or ascending colon if there has been poor mucosal coating of that area on the double-contrast examination. Excellent visualization of the cecum and ascending colon as well as the distal ileum can be obtained by administering barium orally and introducing air rectally when the barium is in the region of the cecum. Colon preparation, diet, increased fluid intake-laxatives, cleansing enema, barium suspension, hypotonic agent, and examination techniques relevant to the double-contrast barium enema are discussed. Radiological appearances of the colon are illustrated, with examples of infiltrating carcinoma, polypoid carcinoma, polyp in sigmoid colon, carcinoma complicating ulcerative colitis, and epithelial dysplasia in ulcerative colitis. (16 Refs)

30. ANGIOGRAPHIC AND COMPUTED TOMOGRAPHIC APPEARANCE OF SECONDARY CARCINOID OF THE LIVER.

Sako M, Lunderquist A, Owman T, Martensson H, Nobin A
(c/o Lunderquist) Dept. Diagnostic Radiology, Univ. Hosp., S-221 85 Lund, Sweden
Cardiovasc Intervent Radiol; 5(2):90-96 1982

Liver angiography in 27 patients with hepatic metastases from carcinoid tumors was compared with computed tomography (CT) in 23 of the patients. CT scans were performed with a Philips Tomoscan 300 before and after iv bolus injection of contrast medium. Angiography detected hepatic metastases of carcinoid tumor in all cases, some of which were less than 1 cm in diameter. In the 13 CT scans performed, hepatic metastases were not detected in five cases, neither before nor after injection of contrast medium. In two cases the metastases were of the fine nodular dissemination type with tumor size less than 1 cm in diameter. However, in the remaining three patients, the lesions were 1-5 cm in diameter. Of the eight cases detected by CT, results were quite variable. Use of contrast medium was not always effective for detection of metastases. Most of the CT-detected cases had the ring-like or mottled appearance seen at angiography, indicating presence of necrotic areas within the lesion, while tumors missed by CT were mostly of the homogeneous staining pattern. It is concluded that hepatic angiography is essential for evaluation of patients with carcinoid syndrome, and for the management of hepatic carcinoid metastases. (10 Refs)

31. USEFULNESS OF DIAGNOSTIC TESTS FOR BILIARY OBSTRUCTION.

Thomas MJ, Pellegrini CA, Way LW
Surgical Service (112), Veterans Admin. Medical Center, Clement St., San Francisco, CA, 94121
Am J Surg; 144(1):102-108 1982

We studied the value of tests commonly used in diagnosing obstructive jaundice in 178 patients operated on for biliary obstruction. Ultrasonography had a diagnostic accuracy of 87% for gall-bladder stones, 82% for dilated ducts, and 80% for pancreatic masses. Computed tomography was 93% accurate in diagnosing dilated ducts, and 93% accurate in diagnosing a pancreatic mass. Intravenous cholangiography gave useful information in only 4 of 21 patients. Among 45 patients, endoscopic retrograde cholangiopancreatography was technically successful in 91% and gave accurate diagnostic information in 86% and partially diagnostic information in 7%; it detected all cases of common duct stones and had a 91% sensitivity for detecting pancreatic cancer. Among 75 patients, transhepatic cholangiography was technically successful in 95% and provided accurate diagnostic information in 90% and partially diagnostic information in 3%; it detected all cases of common duct stones and 95% of cases of benign strictures. With persistent jaundice, ultrasonography should be the first test because it is less costly than computed tomography and provides similar information. If more information is needed, transhepatic cholangiography and endoscopic retrograde cholangiopancreatography are equally accurate; transhepatic cholangiography more often opacifies the proximal biliary tree

and endoscopic retrograde cholangiopancreatography provides direct access to the ampulla of Vater and the pancreatic duct. (Author abstract) (38 Refs)

32. THE VALUE OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY IN PATIENTS WITH SUSPECTED CARCINOMA OF THE PANCREAS AND INDETERMINATE COMPUTED TOMOGRAPHIC RESULTS.

Frick MP, Feinberg SB, Goodale RL
Dept. Radiology, Univ. Minnesota Hosp., 420 Delaware St. S.E., Minneapolis, MN, 55455
Surg Gynecol Obstet; 155(2):177-182 1982

Endoscopic retrograde cholangiopancreatography was used to evaluate 26 patients with clinically suspected pancreatic malignant growths and indeterminate computed tomographic result. Endoscopic retrograde cholangiopancreatography benefited preoperative diagnosis or clinical management in 25 of 26 patients by diagnosing carcinoma in 6, chronic pancreatitis in 10 or normal pancreas in 9. Endoscopic retrograde cholangiopancreatography missed one carcinoma in a chronically inflamed pancreas. Endoscopic retrograde cholangiopancreatography is useful in evaluating patients with indeterminate pancreatic computed tomographic results prior to exploratory laparotomy. (Author abstract) (14 Refs)

HEAD AND NECK TUMORS

33. DIAGNOSTIC VALUE OF ECHOGRAPHY IN THE STUDY OF THYROID NODULES: ULTRASONOGRAPHIC AND HISTOLOGICAL DATA FOR 103 'COLD' THYROID NODULES.

Cimitan M, Bruno A; Pasquotti GP; Petrillo M; Spaziante R; Zecchin R
Ospedale Civile di Pordenone, Pordenone, Italy
Minerva Med; 73(27):1885-1889 1982

One hundred and three scintigraphically cold thyroid nodules were subjected to ultrasonographic and subsequent histological examinations. The histological examinations revealed carcinomas in 0/10 ultrasonographically cystic nodules, in 6/72 solid nodules, and 1/21 mixed cystic-solid nodules. No echographic abnormalities pathognomonic of malignancy were found in any of the 103 nodules. Malignant tumor (undifferentiated carcinoma involving adjacent blood vessels) was diagnosed before surgery in one case only. (12 Refs) (In ITA)

RESPIRATORY TUMORS

34. 'TAIL' SIGNS ASSOCIATED WITH PULMONARY LESIONS: CRITICAL REAPPRAISAL.

Hill CA
Dept. Diagnostic Radiology, Univ. Texas M. D. Anderson Hosp. and Tumor Inst. at Houston, 6723 Bertner Ave., Houston, TX, 77030
AJR; 139(2):311-316 1982

Recent experience at the University of Texas M D Anderson Hospital has cast doubt on the specificity of the pleuropulmonary 'tail' signs and on their ability to differentiate malignant from benign pulmonary lesions. To critically reappraise their usefulness, a three part study was undertaken: (1) a prospective collection of data on 45 consecutive patients whose chest radiographs demonstrated a tail sign; (2) a retrospective review of radiographs of 121 patients with bronchioloalveolar carcinoma, in which tail signs are reportedly frequent; and (3) a retrospective review of radiographs of 72 patients with proven tuberculous lesions. Pleuropulmonary tail signs were considered of three types: a thin line (tail sign); one or more thickened lines ('rabbit ears' sign), or a tapered line ('participating tail' sign) extending from a lesion to the pleura. The results demonstrate that these signs are nonspecific features of peripherally located pulmonary lesions and, if used to differentiate a malignant from a nonmalignant lesion, may lead to serious diagnostic errors. On the other hand, a transition from one type of sign of another is useful in evaluating activity. A tail sign may call attention to an otherwise obscure lesion. (Author abstract) (8 Refs)

SELECTED PRE-CLINICAL TUMORS

35. APPLICATION OF LYMPHANGIOGRAPHY TO DIAGNOSIS AND TREATMENT OF LYMPH NODE METASTASIS.

Hashimoto K
First Dept. Oral Surgery, Tokyo Medical and Dental Coll., Tokyo, Japan
Kokubyo Gakkai Zasshi; 49(1):192 1982

Metastasis-inhibiting and long-term effects of bleomycin (BLM) were studied in Japanese white rabbits given sc transplantation of VX2 experimental tumor cells. Rabbits were divided into five groups as follows: Group I was given no treatment following transplantation, Group II had resections of primary tumor nests 10 days after transplantation, Group III was given intralymphatic injection of lipoidal-BLM (L-BLM; 3 mg/kg) directly after transplantation, Group IV was given direct injection of L-BLM 10 days after transplantation, and Group V was given intralymphatic injection of L-BLM 10 days after transplantation. Group I rabbits died between wk 2-10. Group II rabbits died between wk 5-16. Group III rabbits had a 20-wk survival rate of 4/5. Group IV survival was the same as that of Group I. Group V had a clear prolongation of survival up to wk 5 after injection of the BLM. Histologically, changes were observed in lymph nodes in the early stages after injection of the L-BLM, decreased wk 2-3 after injection, and recovery occurred thereafter. Results showed that direct intralymphatic injection of L-BLM allows direct and prolonged observation of difficult to observe with the aid of lymphangiography of small lymph nodes. This also suggests the possible use of L-BLM for early diagnosis of lymph nodal and localized metastases. (3 Refs) (In JPN)

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